PACIFIC COAST GROUNDFISH FISHERY MANAGEMENT PLAN

FOR THE CALIFORNIA, OREGON, AND WASHINGTON GROUNDFISH FISHERY

APPENDIX B
PART 4

HABITAT SUITABILITY PROBABILITY MAPS FOR INDIVIDUAL GROUNDFISH SPECIES AND LIFE HISTORY STAGES

# Pacific Coast Groundfish Fishery Management Plan
Appendix B.4
EFH Model and HSP Maps

To assist NMFS and the Council in describing Essential Fish Habitat, a model was developed to predict an overall measure of the suitability of habitat in particular locations for as many species as possible. Where possible, the suitability of habitat was measured using the occurrence of fish species in NMFS trawl survey catches. For species not well represented in the trawl catches, information from the scientific literature was used. Species and life stages for which no specific information could be found were considered using the precautionary principle.

The EFH model characterizes habitat in terms of three variables: depth, latitude, and substrate (both physical and biogenic substrate, where possible). For the purposes of the model these three characteristics provide a reasonable representation of the essential features of habitat that influence the occurrence of fish. Depending on these characteristics and the observed distributions of fish in relation to them, each location (a parcel or polygon of habitat in the GIS) is allocated a suitability value between 0 and 100%. This is called the *Habitat Suitability Probability*, or HSP, and it is calculated for as many species and life stages in the FMP as possible based on available data. These scores and the differences between scores for different locations are then used to develop a proxy for the areas that can be regarded as "essential". The higher the HSP, the more likely the habitat area should be identified as EFH.

The EFH identification model provides spatially explicit estimates of HSP for 168 groundfish species/life stage combinations, including the adults of all species in the FMP. Distribution ranges for depth and latitude were derived where possible from in-situ observations of occurrence in NMFS trawl survey catches. Where survey data were insufficient, depth and latitude ranges were extracted from reports and papers in the scientific literature. Preferences for substrate types were also taken from the scientific literature. The HSP values for each habitat polygon are mapped using GIS software. For the reader unfamiliar with GIS, a primer is contained on page 14 of the Risk Assessment.

Arrowtooth Flounder - Adult
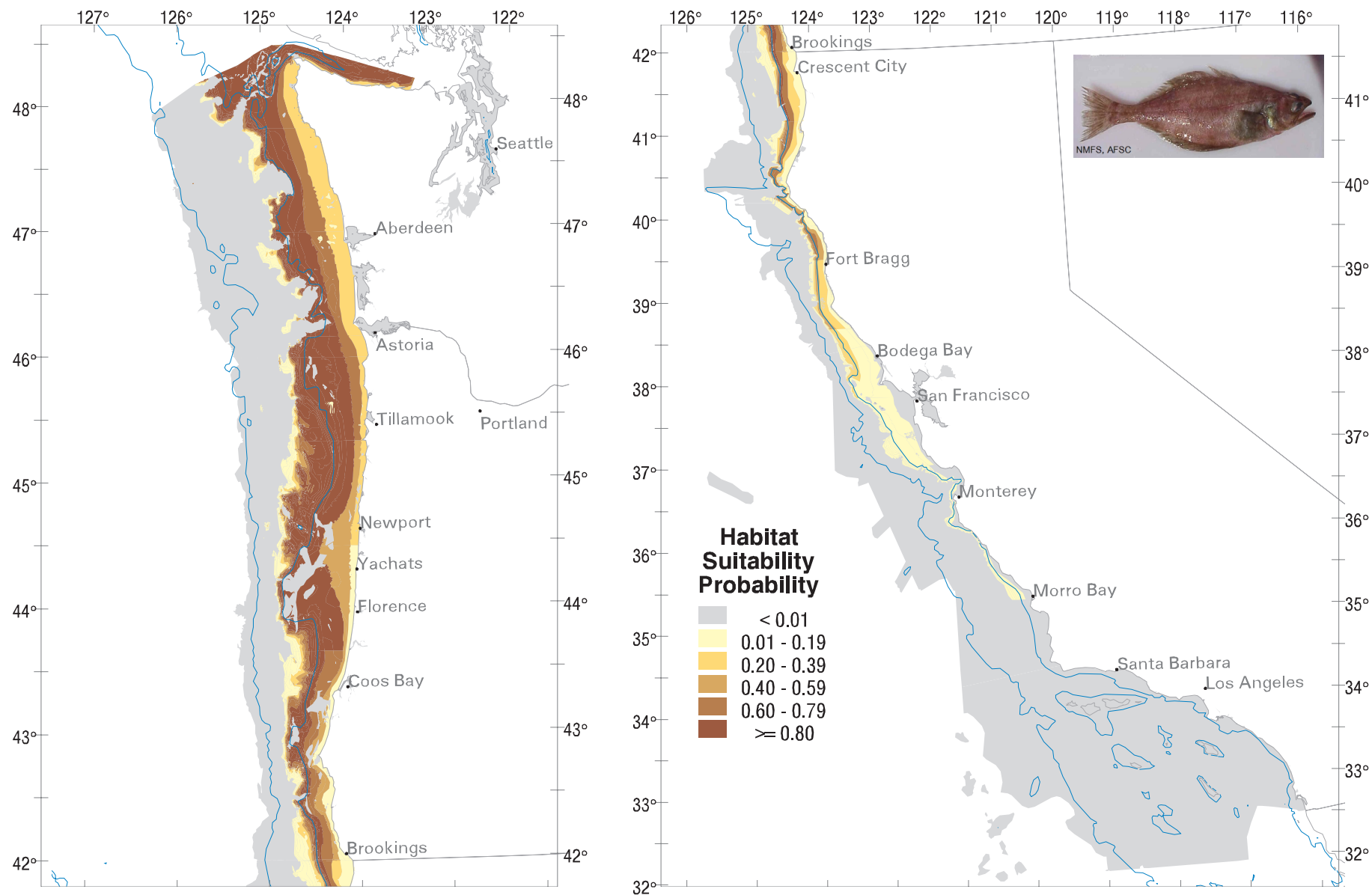
**Habitat
Suitability
Probability**

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date : November 01 , 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from : Survey+

Pacific Coast Groundfish EFH FEIS

December 2005

Arrowtooth Flounder - Eggs

**Habitat
Suitability
Probability**

▨	< 0.01
▨	0.01 - 0.19
▨	0.20 - 0.39
▨	0.40 - 0.59
▨	0.60 - 0.79
▨	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005
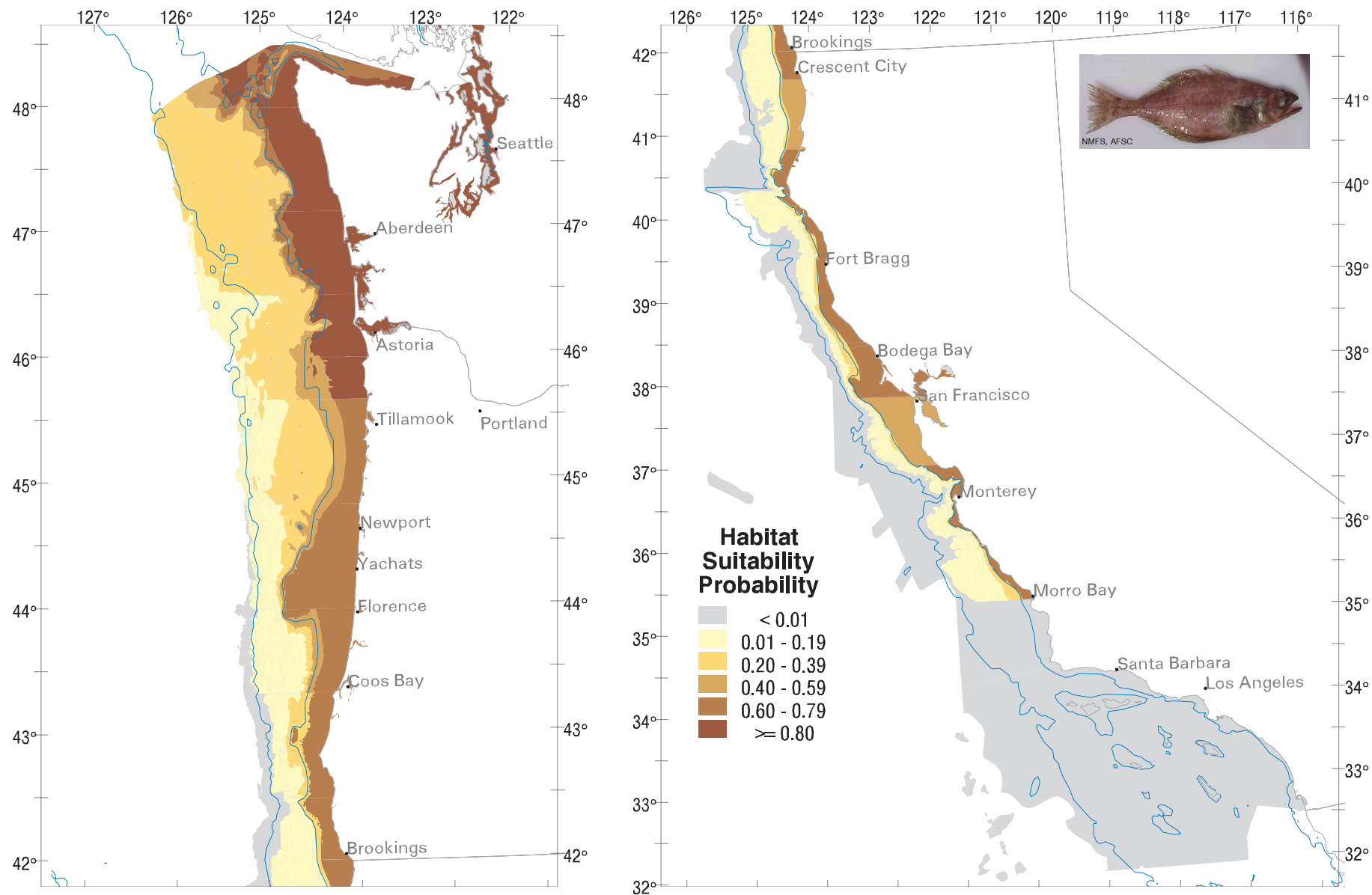
Arrowtooth Flounder - Juvenile

Habitat Suitability Probability

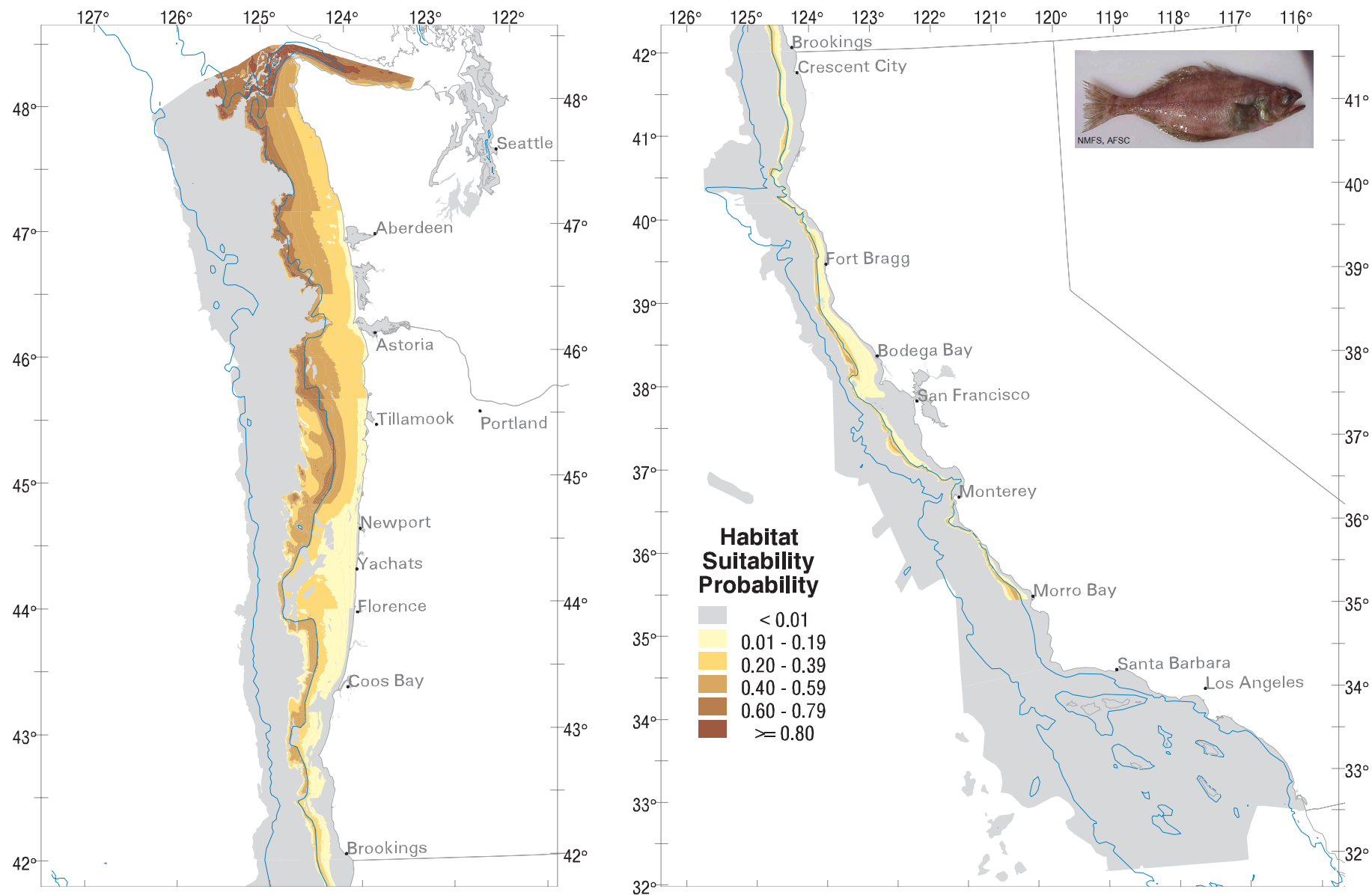|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Arrowtooth Flounder - Larvae

Habitat Suitability Probability

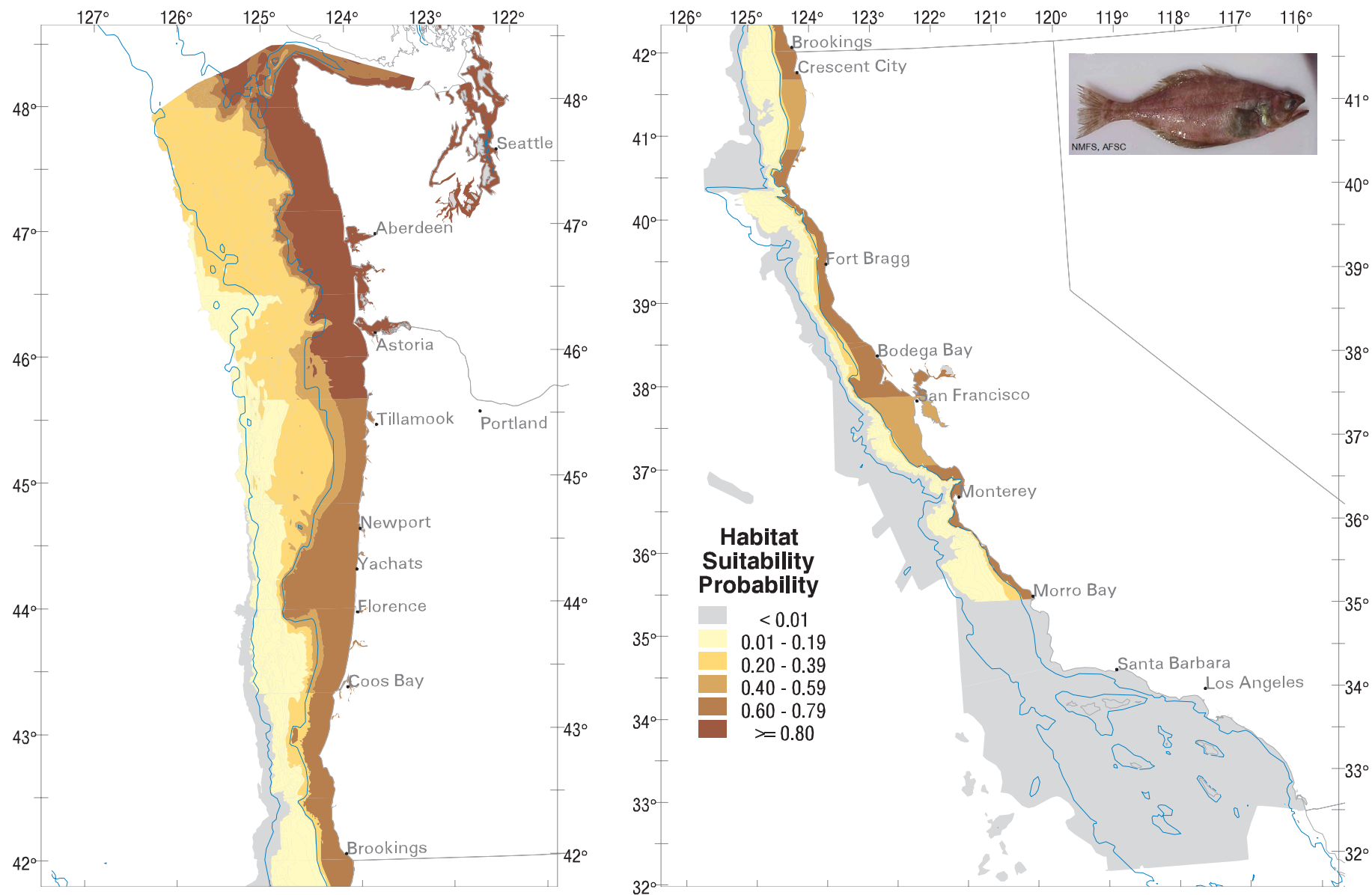|	
▧	< 0.01
▧	0.01 - 0.19
▧	0.20 - 0.39
▧	0.40 - 0.59
▧	0.60 - 0.79
▧	>= 0.80

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Aurora Rockfish - Adult

Habitat Suitability Probability

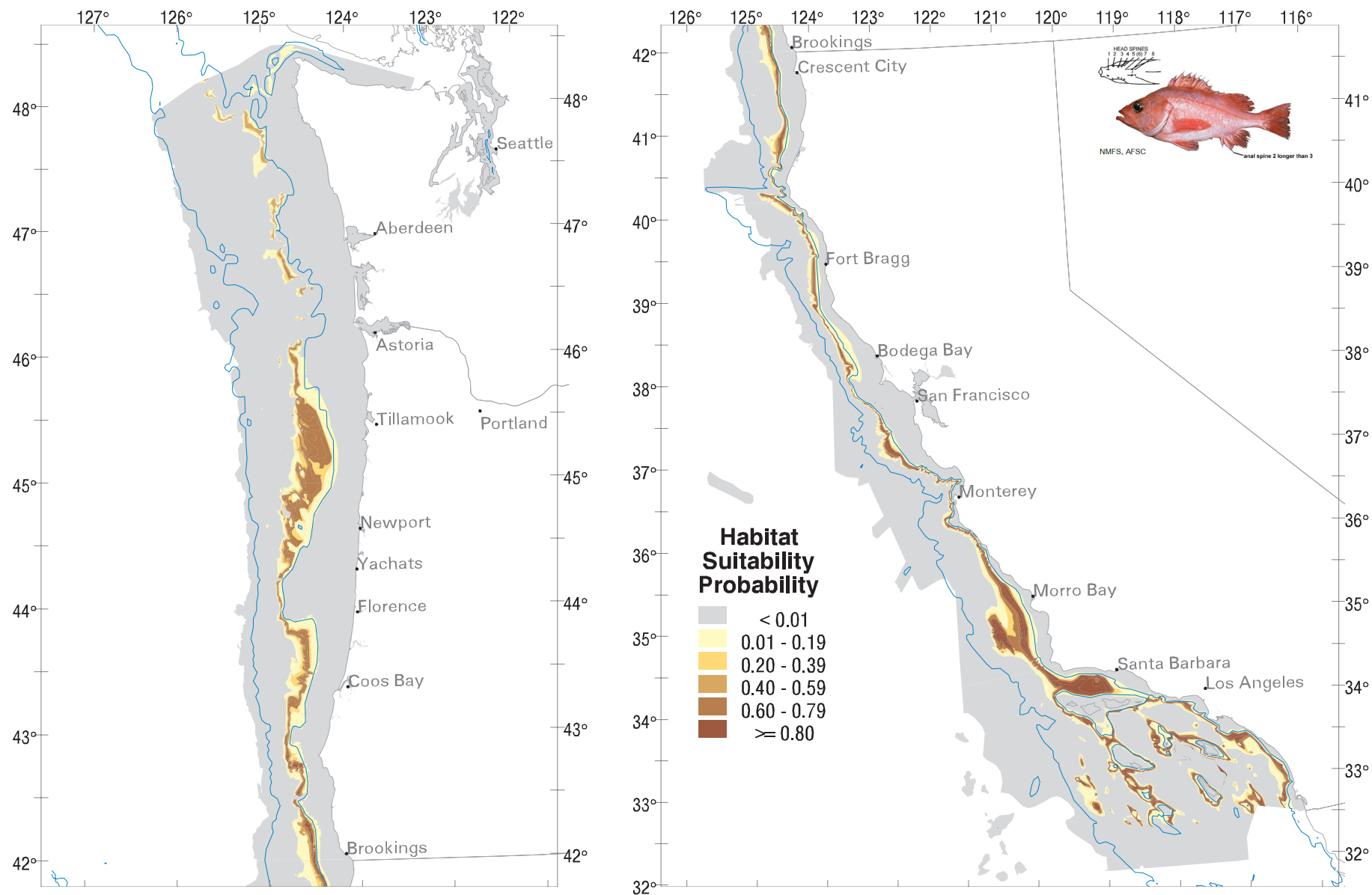|	
▨	< 0.01
▨	0.01 - 0.19
▨	0.20 - 0.39
▨	0.40 - 0.59
▨	0.60 - 0.79
▨	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey

Pacific Coast Groundfish EFH FEIS

December 2005

Aurora Rockfish - Juvenile

HEAD SPINES
1 2 3 4 5 (6) 7 8

NMFS, AFSC

anal spine 2 longer than 3

Habitat Suitability Probability

Color	Range
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Left map labels: Seattle, Aberdeen, Astoria, Portland, Tillamook, Newport, Yachats, Florence, Coos Bay, Brookings

Right map labels: Brookings, Crescent City, Fort Bragg, Bodega Bay, San Francisco, Monterey, Morro Bay, Santa Barbara, Los Angeles
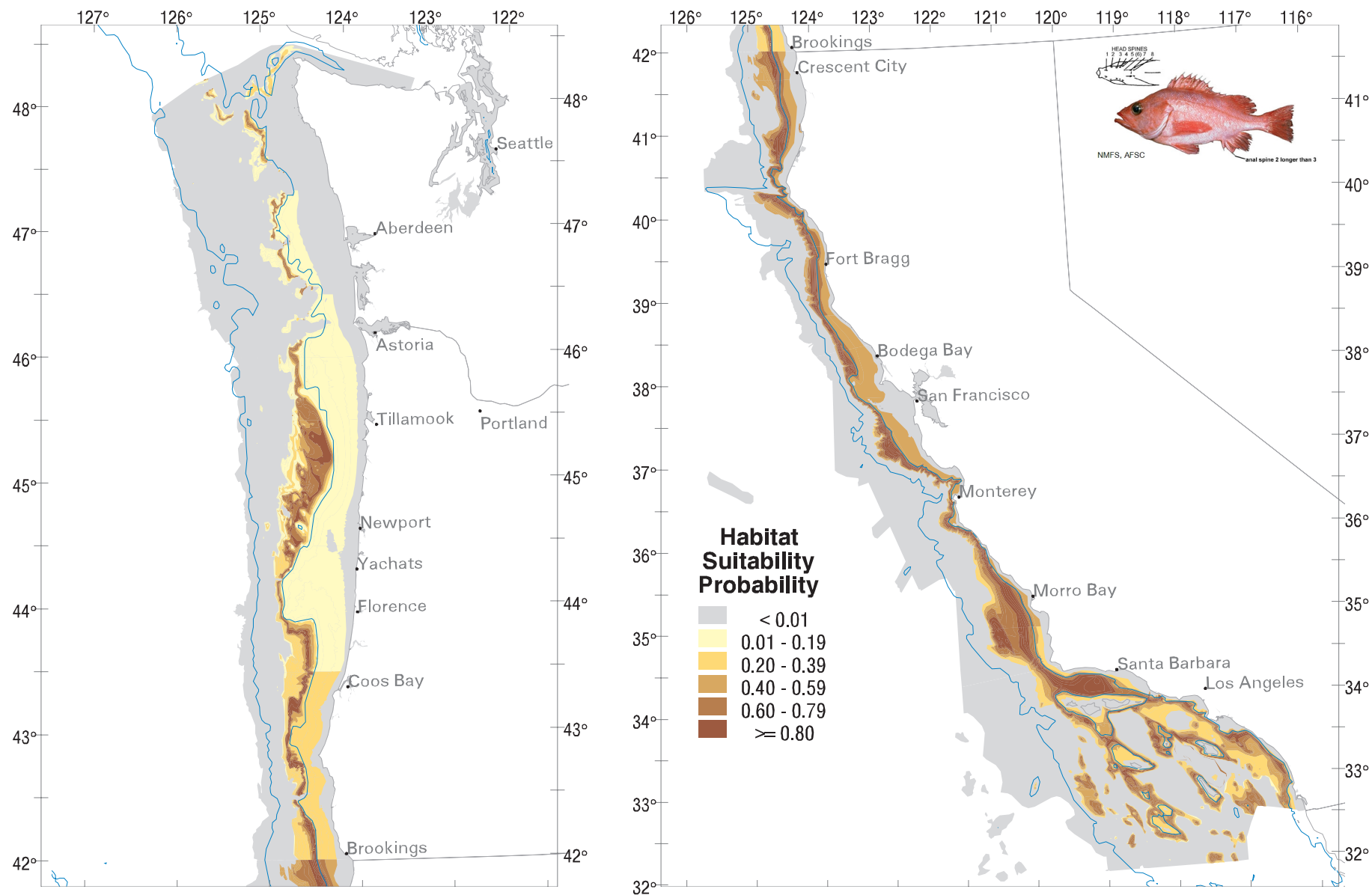
Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Aurora Rockfish - Larvae

Habitat Suitability Probability

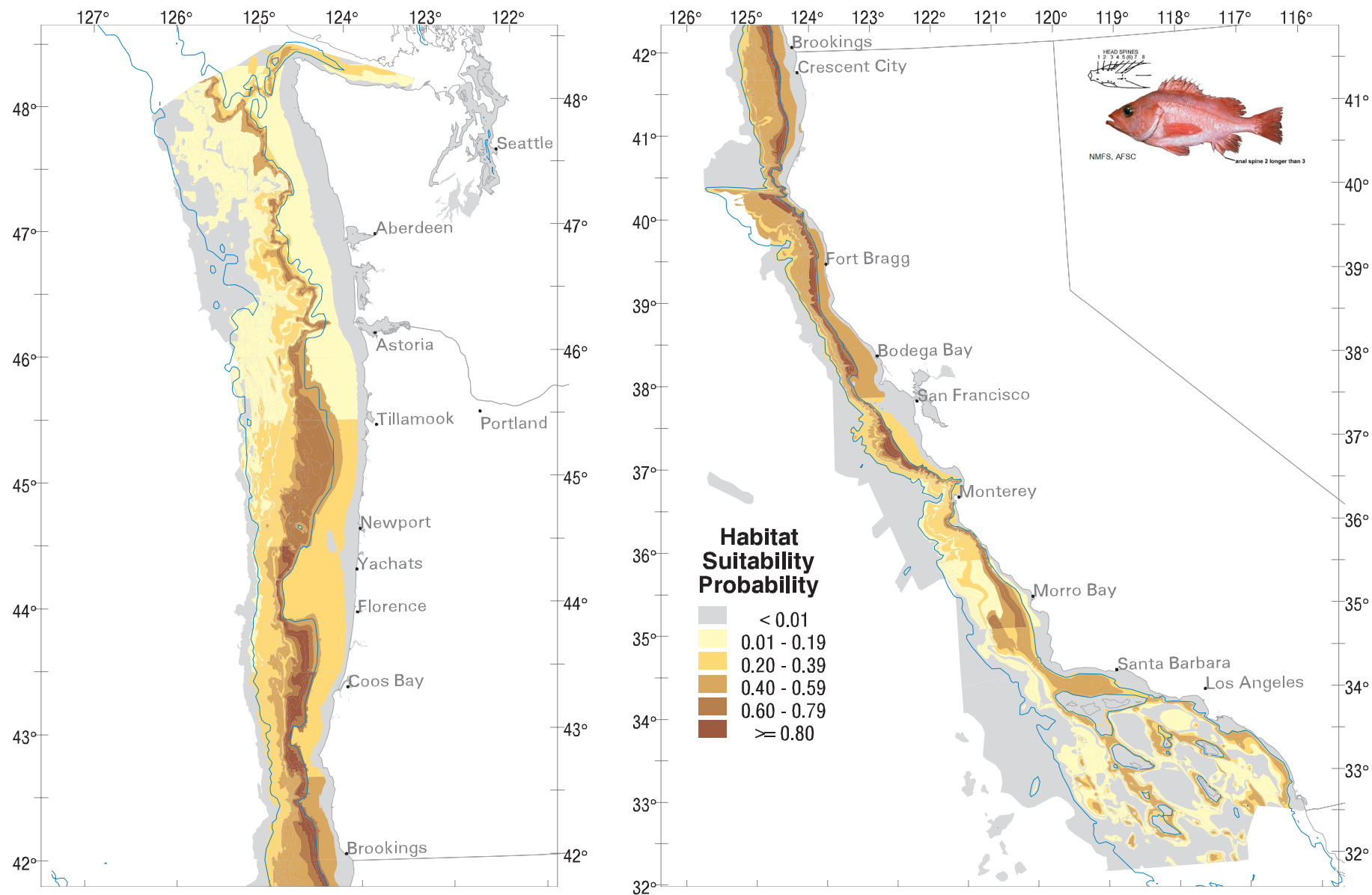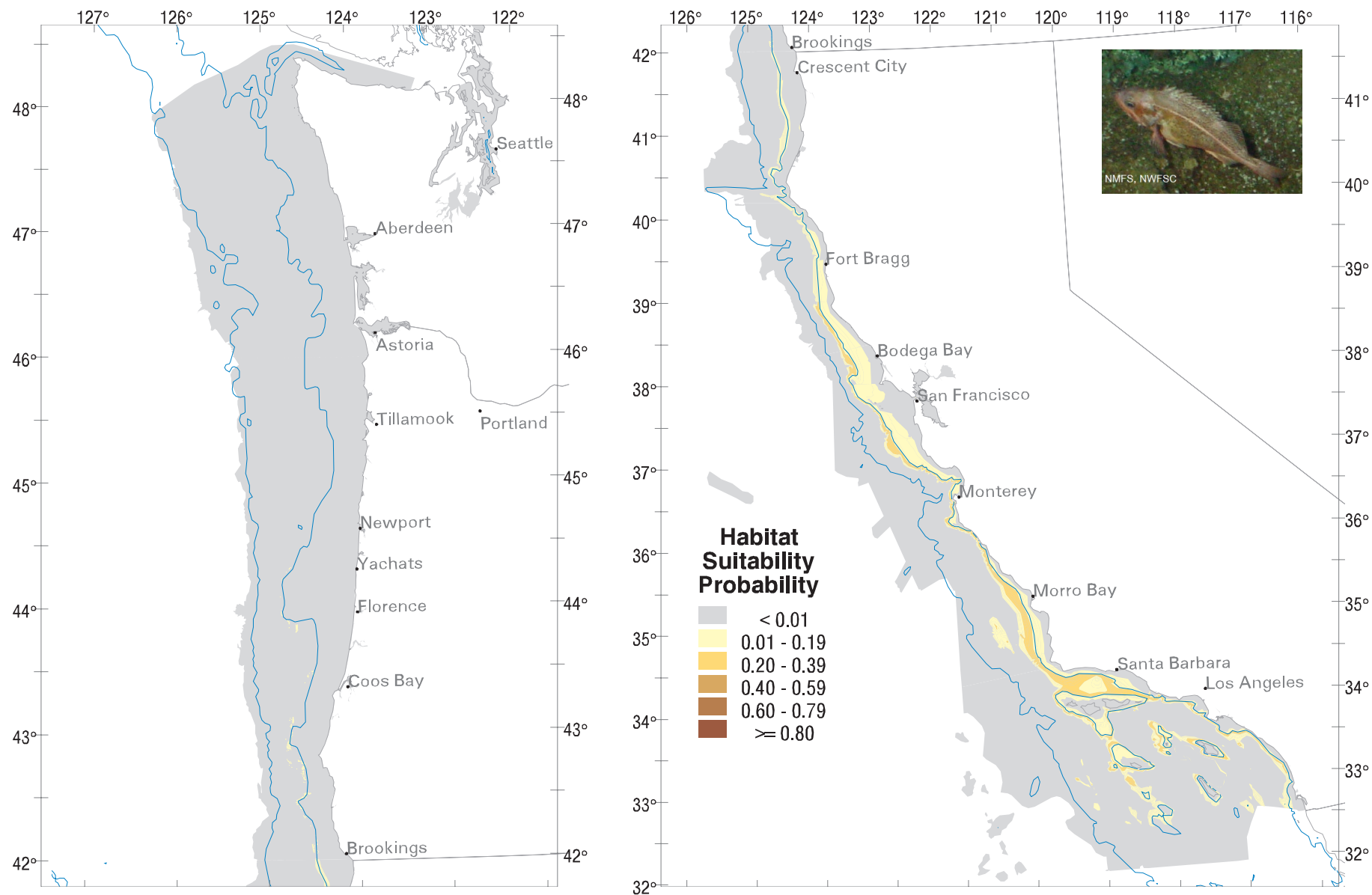|	
☐	< 0.01
☐	0.01 - 0.19
☐	0.20 - 0.39
☐	0.40 - 0.59
☐	0.60 - 0.79
☐	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Bank Rockfish - Adult

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Brookings
Crescent City
Fort Bragg
Bodega Bay
San Francisco
Monterey
Morro Bay
Santa Barbara
Los Angeles

Seattle
Aberdeen
Astoria
Tillamook
Portland
Newport
Yachats
Florence
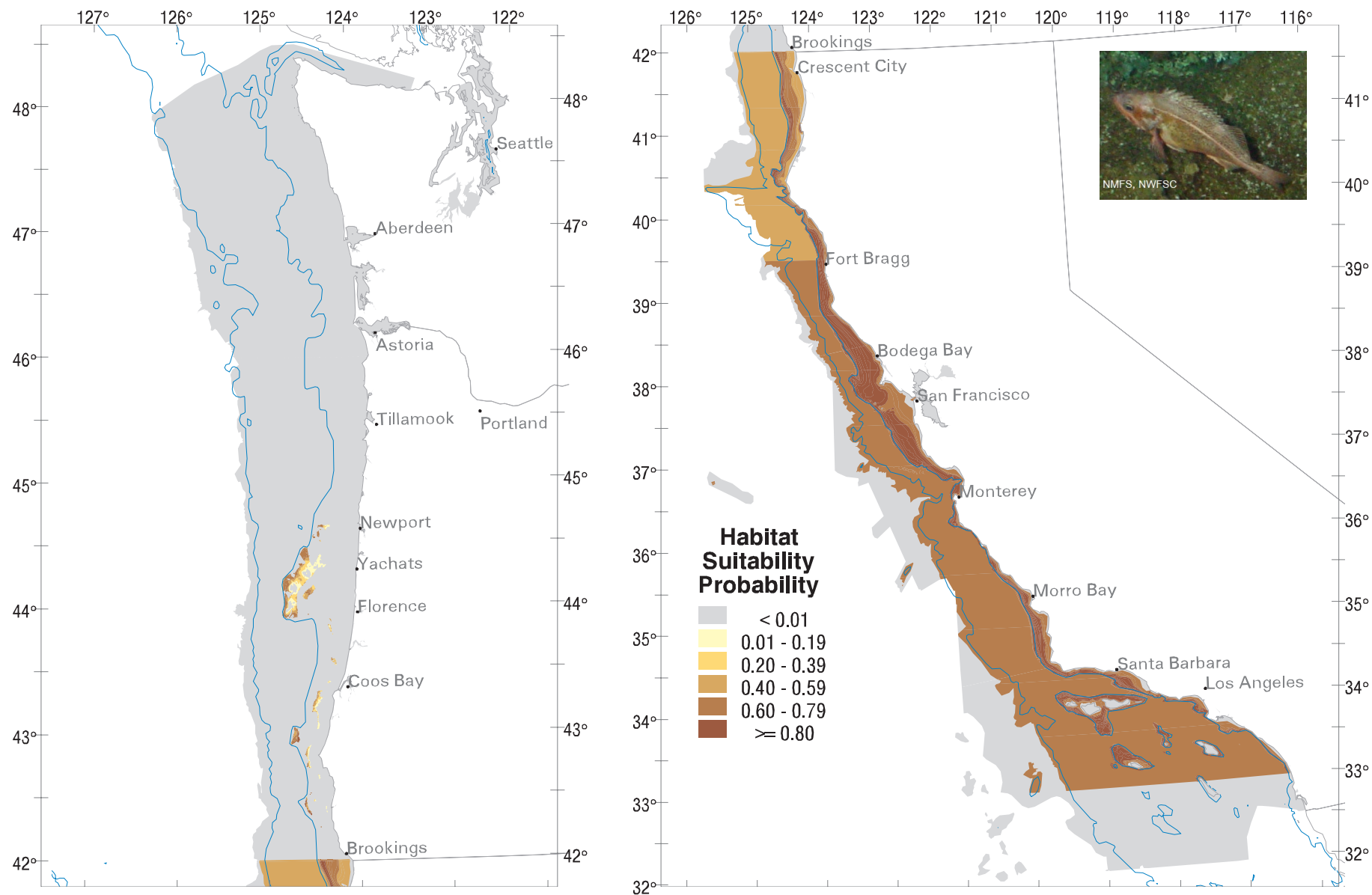Coos Bay
Brookings

NMFS, NWFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey

Pacific Coast Groundfish EFH FEIS

December 2005

Bank Rockfish - Juvenile

NMFS, NWFSC

Habitat Suitability Probability

![grey]	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Brookings
Crescent City
Fort Bragg
Bodega Bay
San Francisco
Monterey
Morro Bay
Santa Barbara
Los Angeles

Seattle
Aberdeen
Astoria
Portland
Tillamook
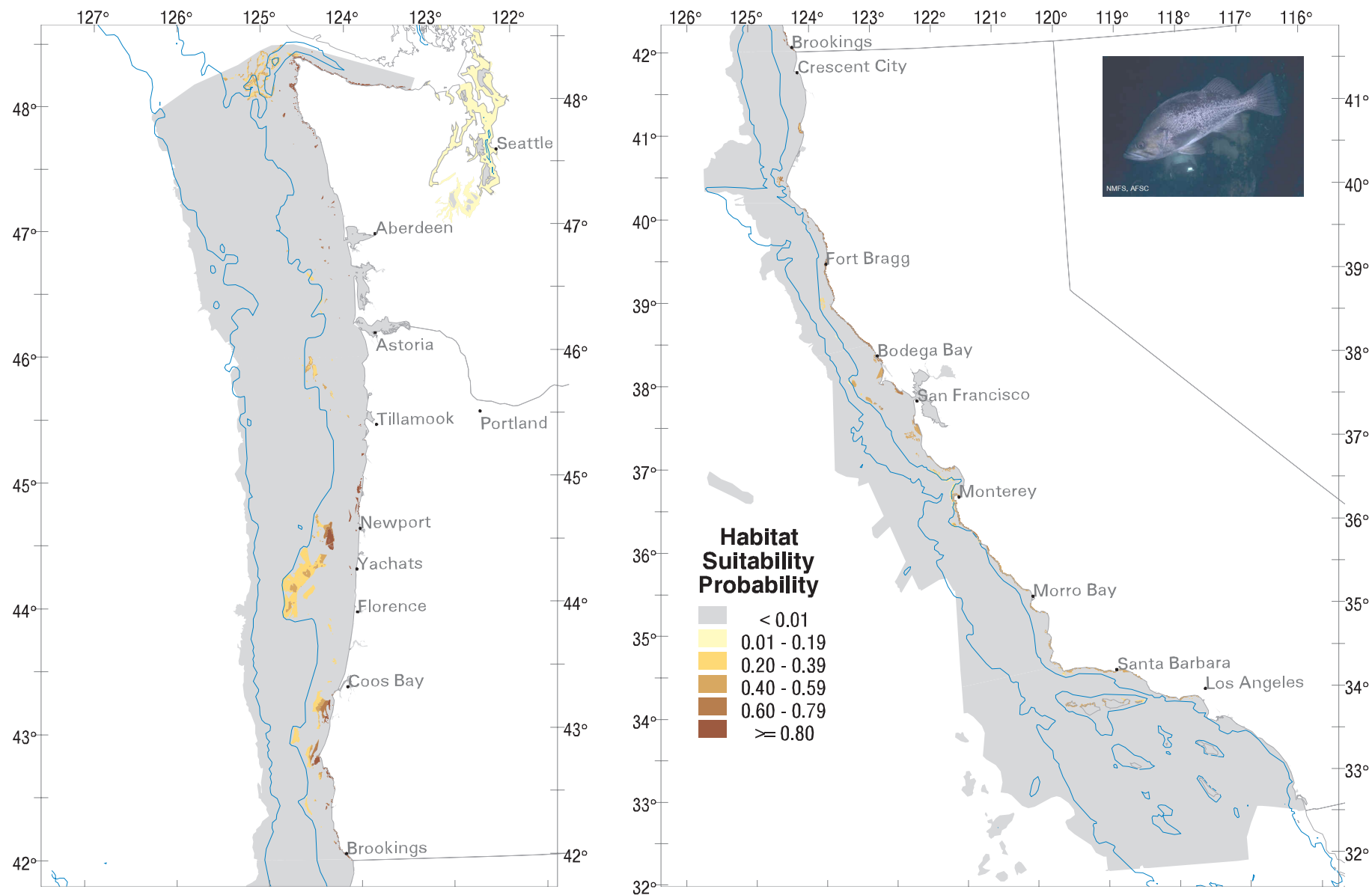Newport
Yachats
Florence
Coos Bay
Brookings

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Black Rockfish - Adult

Habitat Suitability Probability

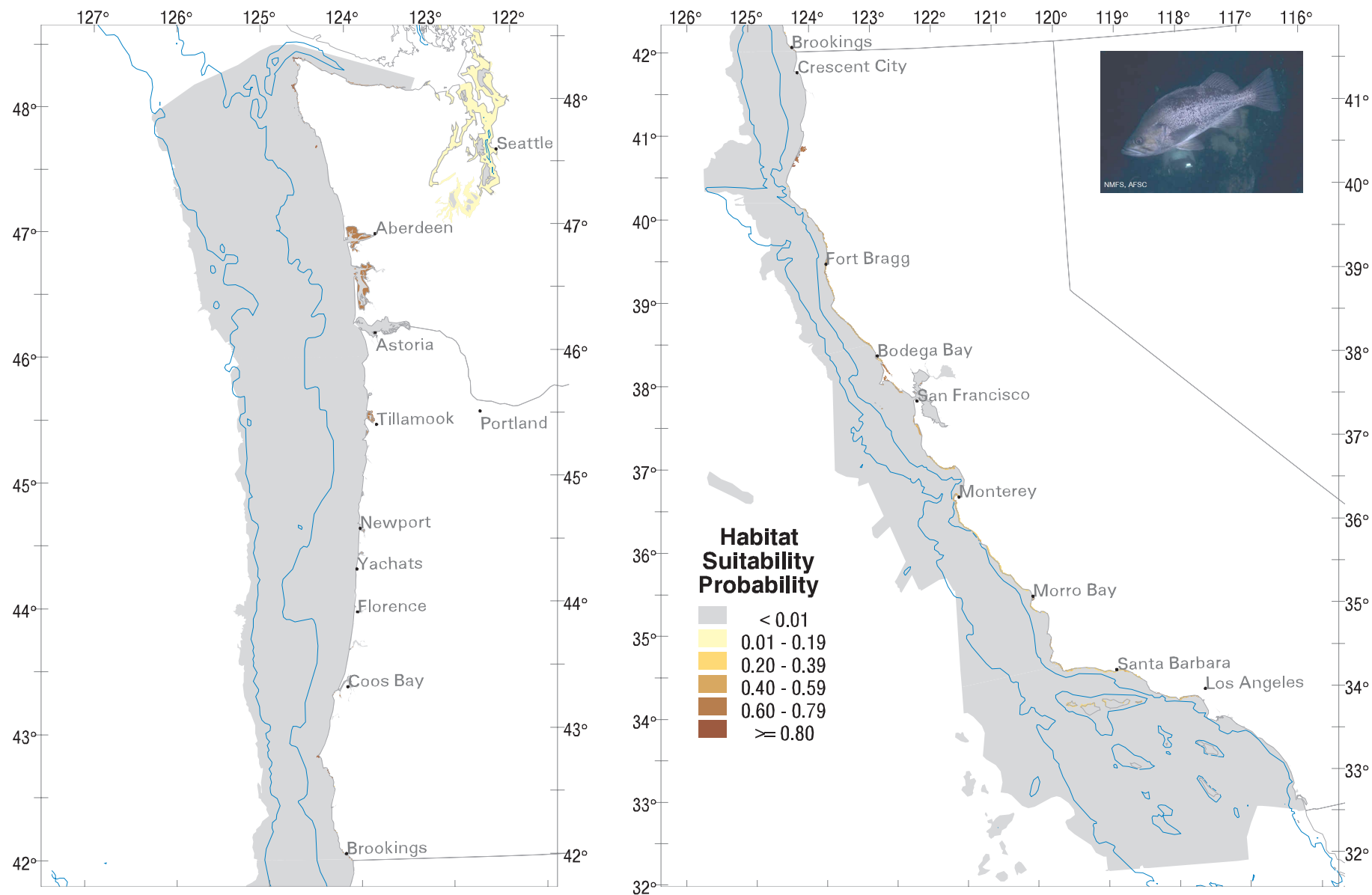|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date : October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from : HUD

Black Rockfish - Juvenile

Map labels (left panel): Seattle, Aberdeen, Astoria, Tillamook, Portland, Newport, Yachats, Florence, Coos Bay, Brookings

Map labels (right panel): Brookings, Crescent City, Fort Bragg, Bodega Bay, San Francisco, Monterey, Morro Bay, Santa Barbara, Los Angeles

NMFS, AFSC

Habitat Suitability Probability

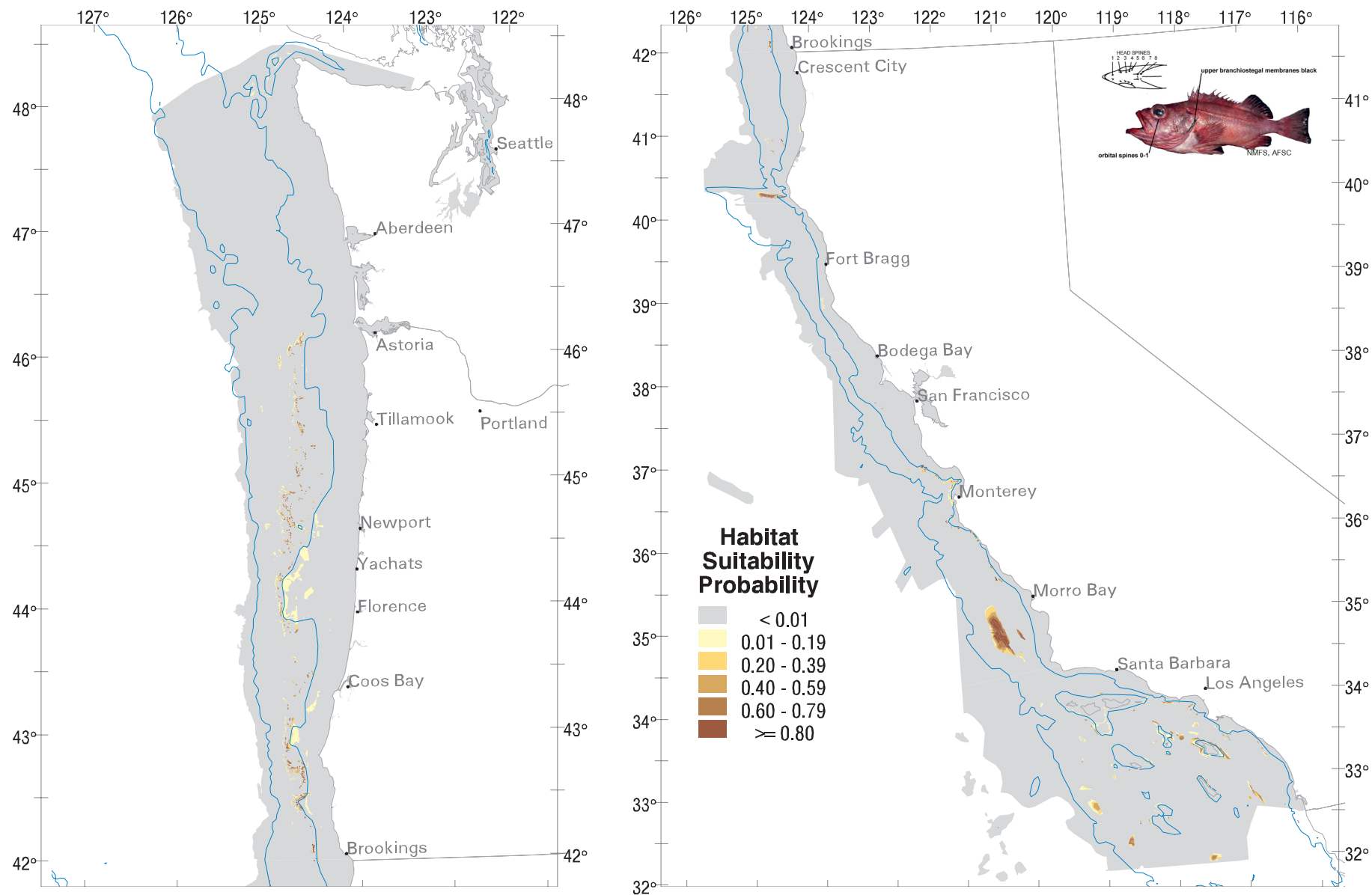|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Blackgill Rockfish - Adult

Habitat Suitability Probability

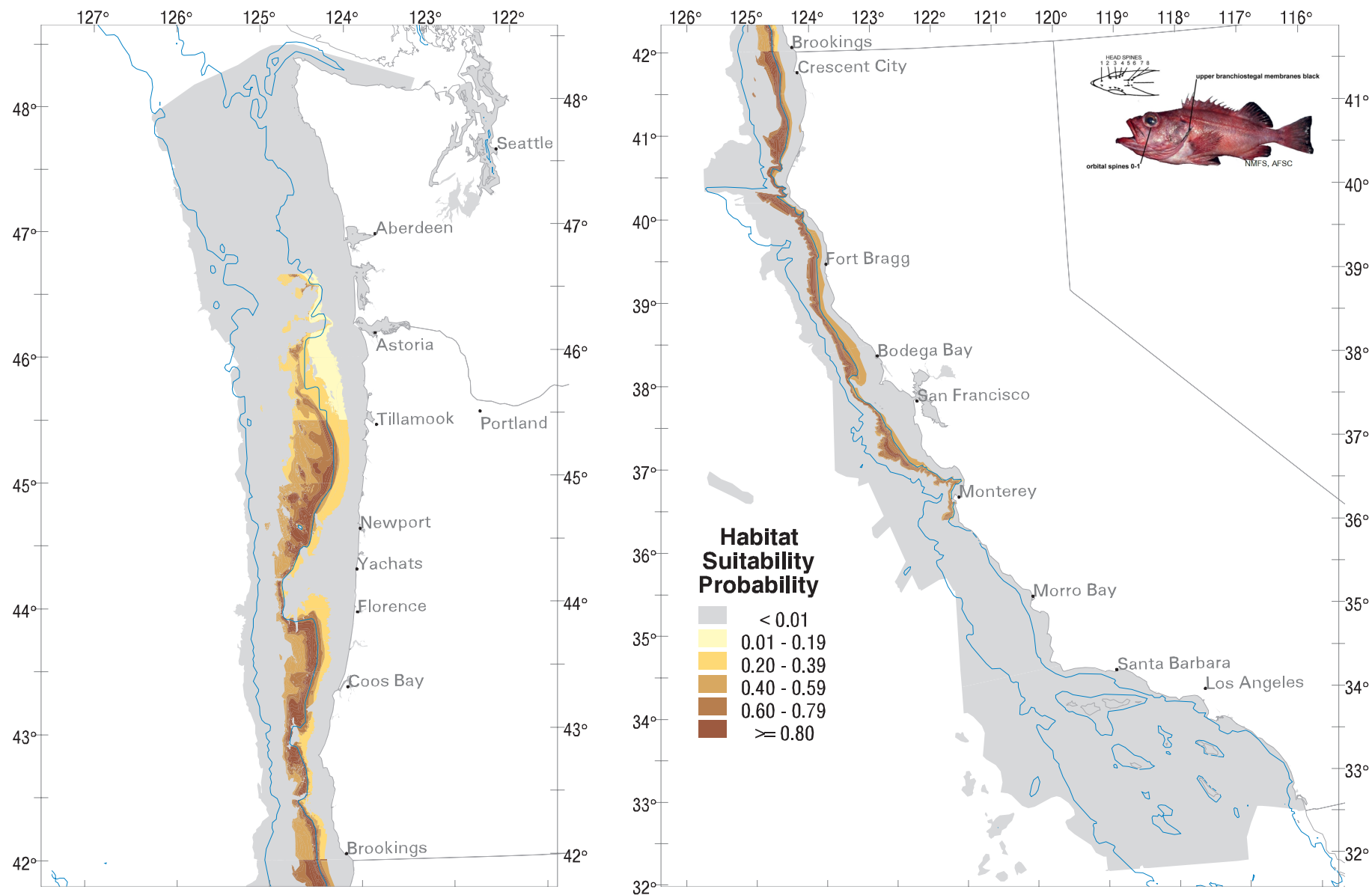|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Blackgill Rockfish - Juvenile

Habitat Suitability Probability

(grey)	< 0.01
(pale yellow)	0.01 - 0.19
(yellow)	0.20 - 0.39
(tan)	0.40 - 0.59
(brown)	0.60 - 0.79
(dark brown)	>= 0.80

HEAD SPINES
1 2 3 4 5 6 7 8

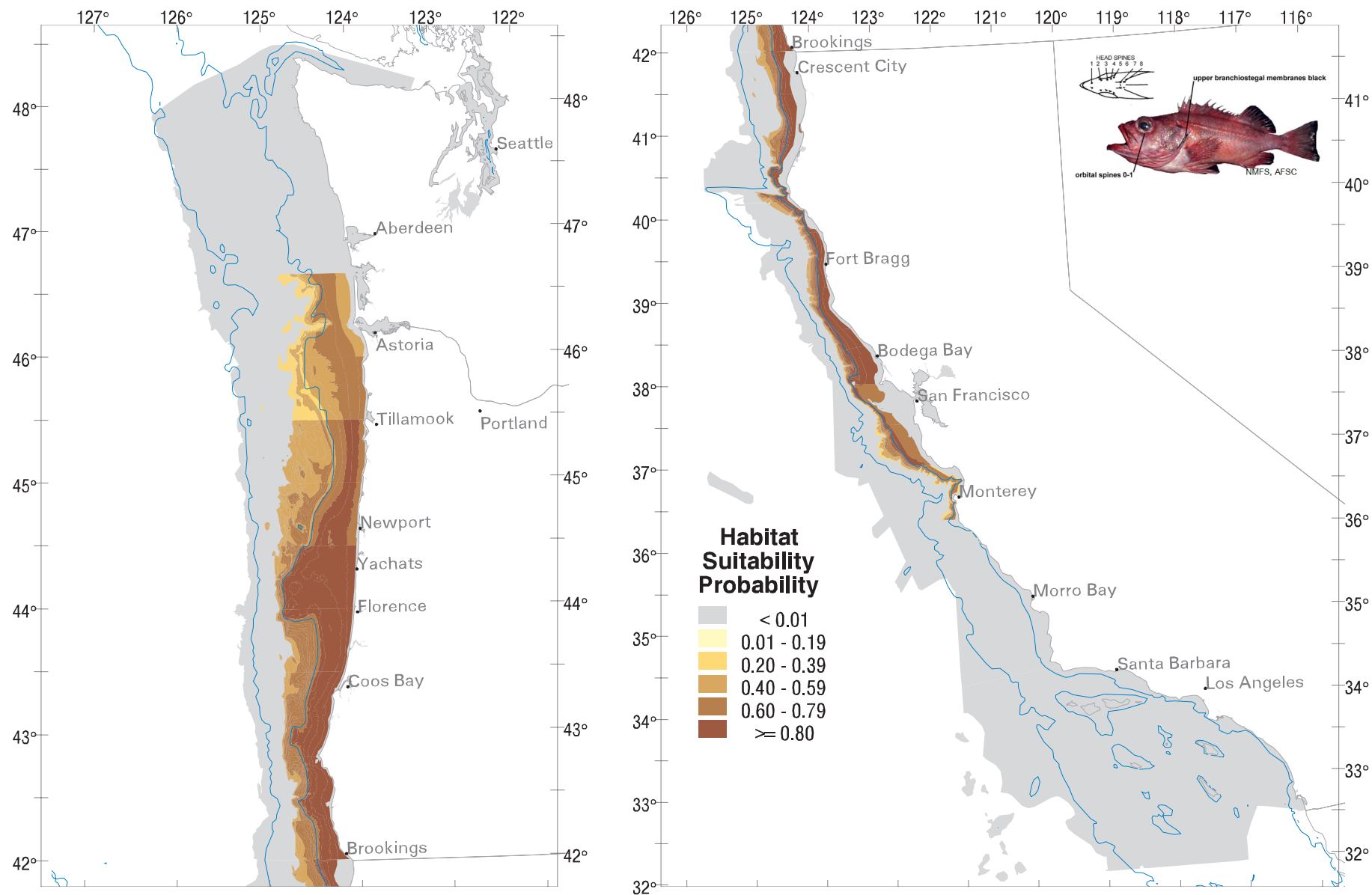upper branchiostegal membranes black

orbital spines 0-1

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Blackgill Rockfish - Larvae

Habitat Suitability Probability

⬜	< 0.01
🟨	0.01 - 0.19
🟧	0.20 - 0.39
🟧	0.40 - 0.59
🟫	0.60 - 0.79
🟫	>= 0.80

HEAD SPINES
1 2 3 4 5 6 7 8

upper branchiostegal membranes black
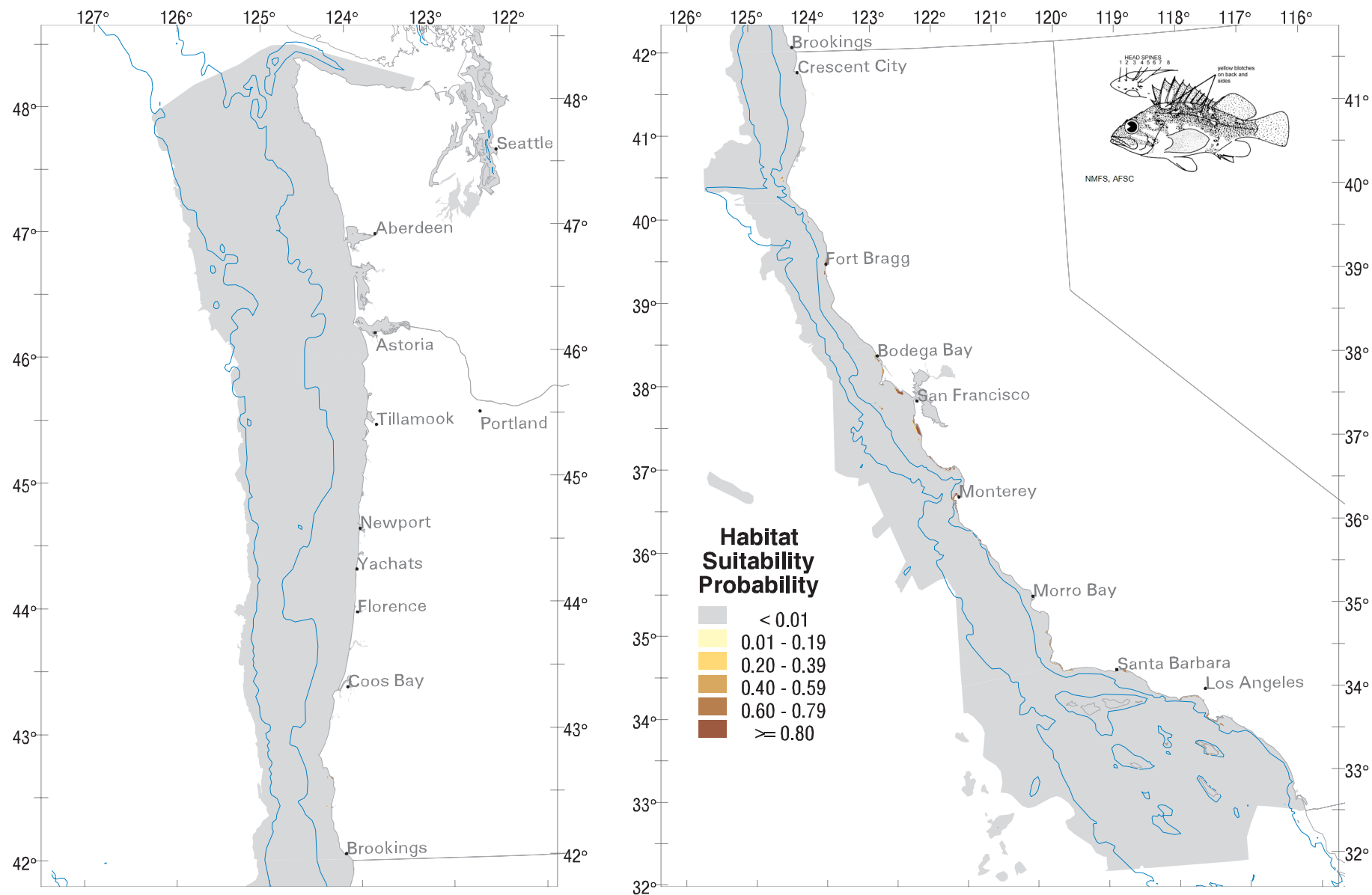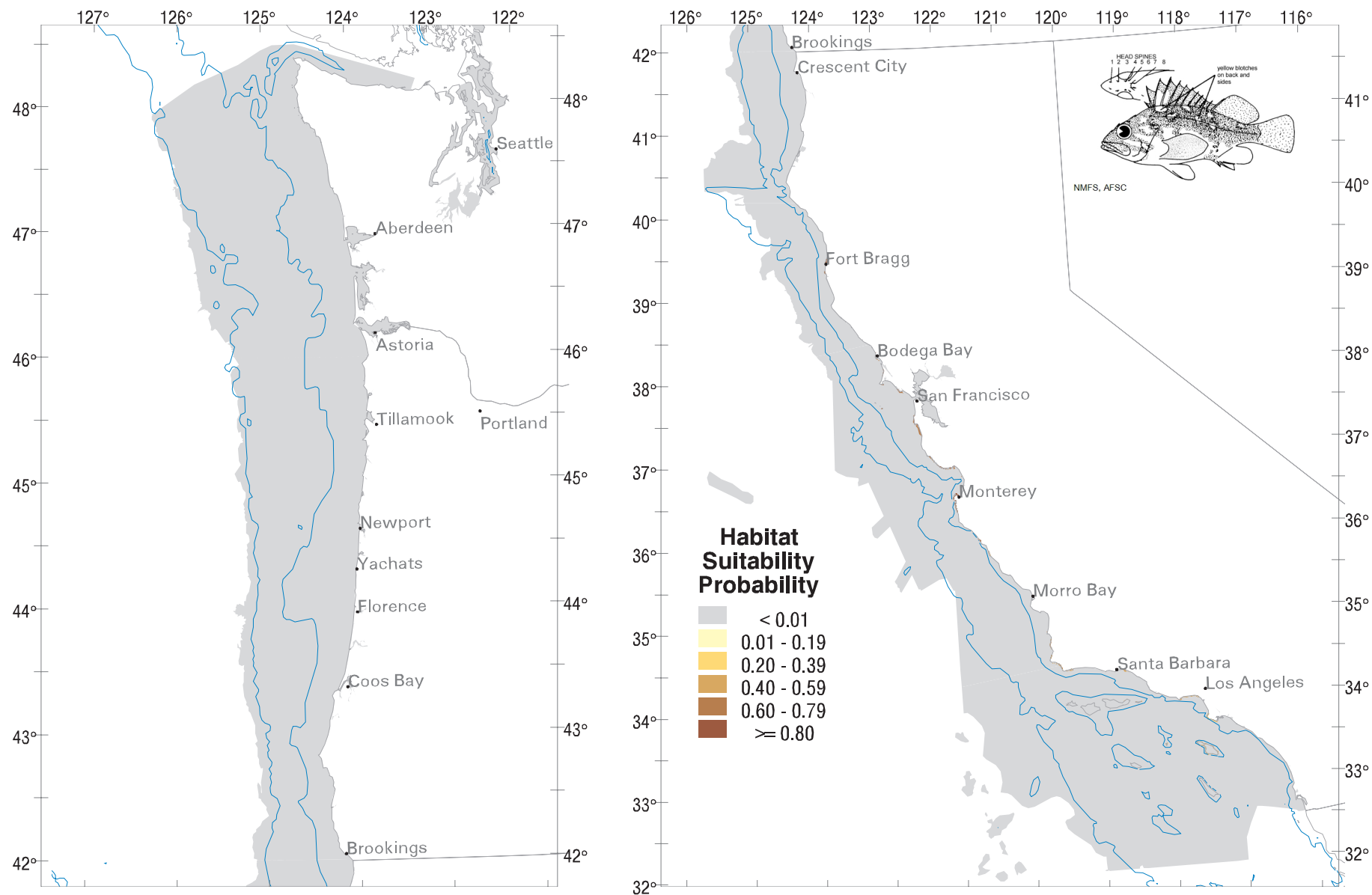
orbital spines 0-1

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Black and Yellow Rockfish - Adult

HEAD SPINES
1 2 3 4 5 6 7 8

yellow blotches
on back and
sides

NMFS, AFSC

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date : November 01 , 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from : HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Black and Yellow Rockfish - Juvenile

Habitat Suitability Probability

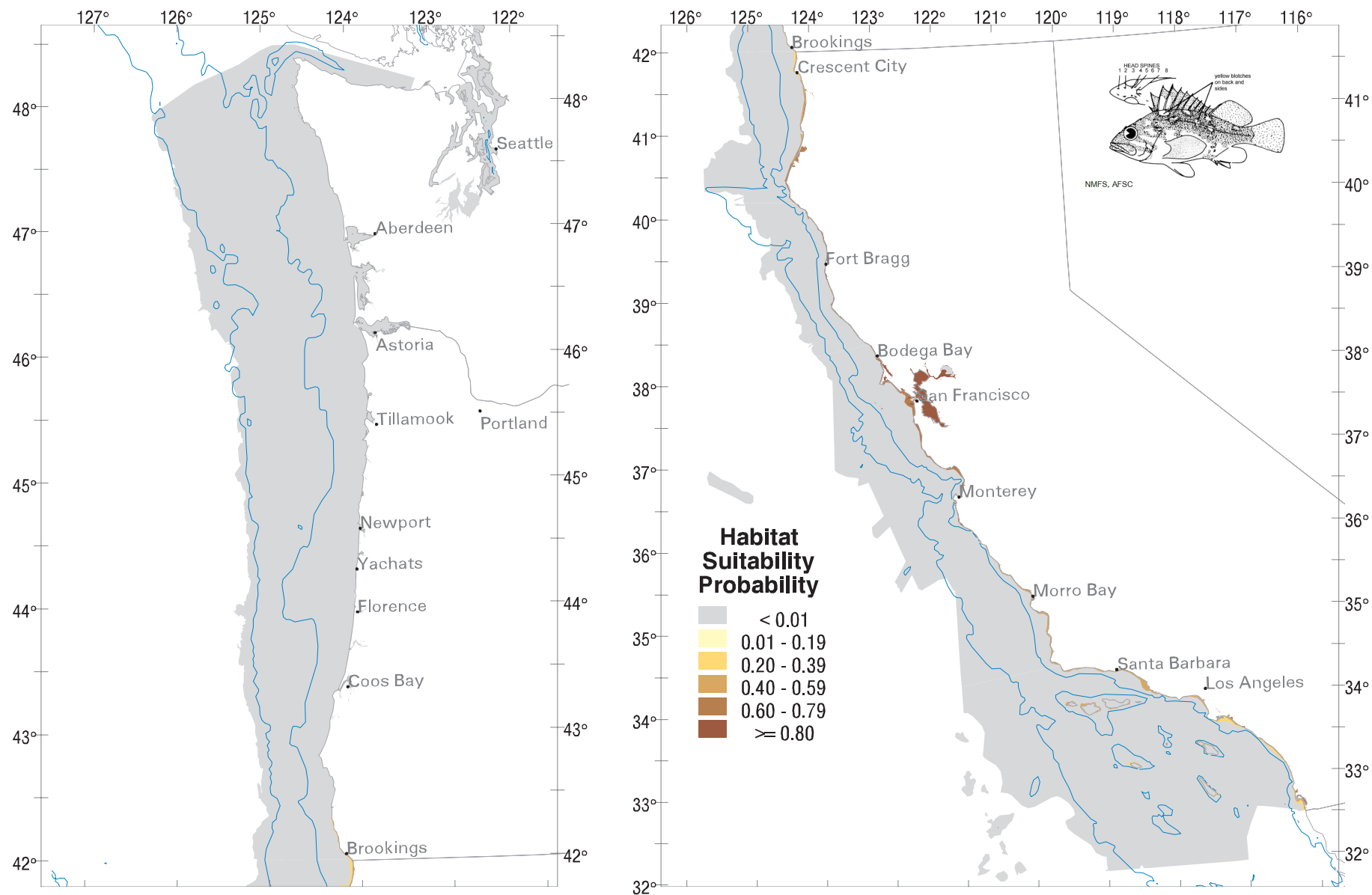|	
⬜	< 0.01
⬜	0.01 - 0.19
🟧	0.20 - 0.39
🟫	0.40 - 0.59
🟫	0.60 - 0.79
🟫	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Black and Yellow Rockfish - Larvae

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

HEAD SPINES
1 2 3 4 5 6 7 8

yellow blotches
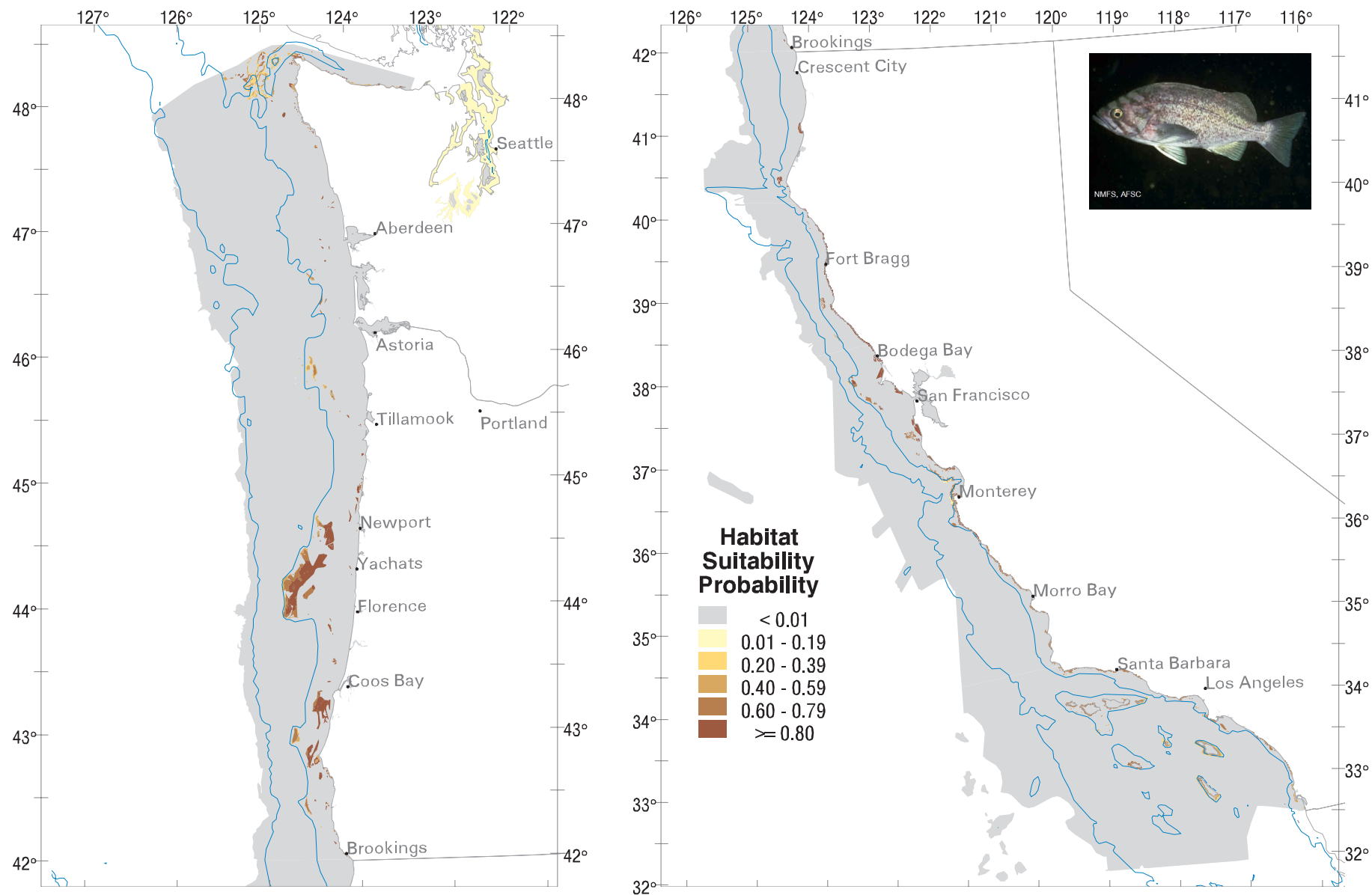on back and
sides

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Blue Rockfish - Adult

Habitat Suitability Probability

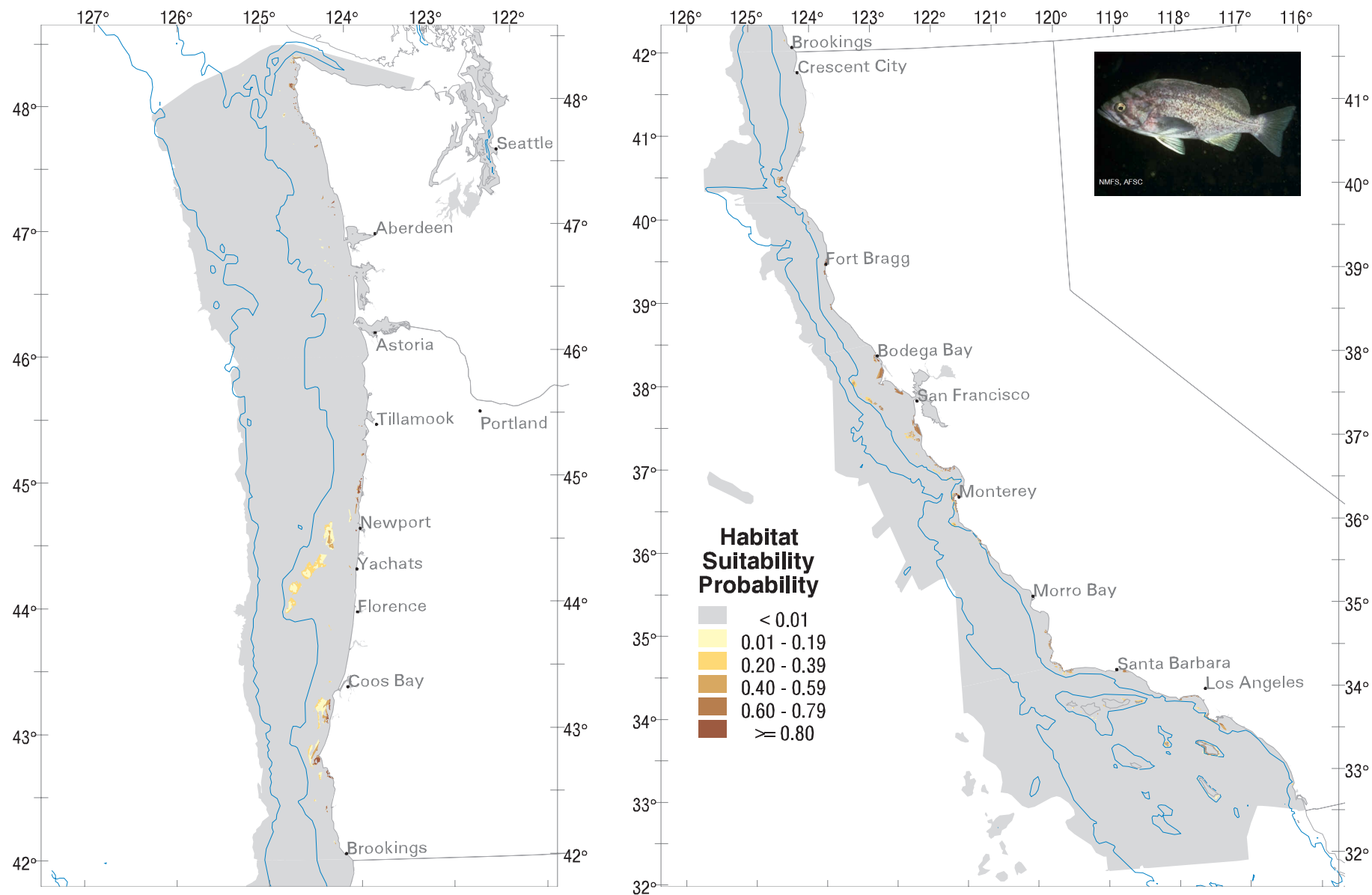|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Blue Rockfish - Juvenile

Habitat Suitability Probability

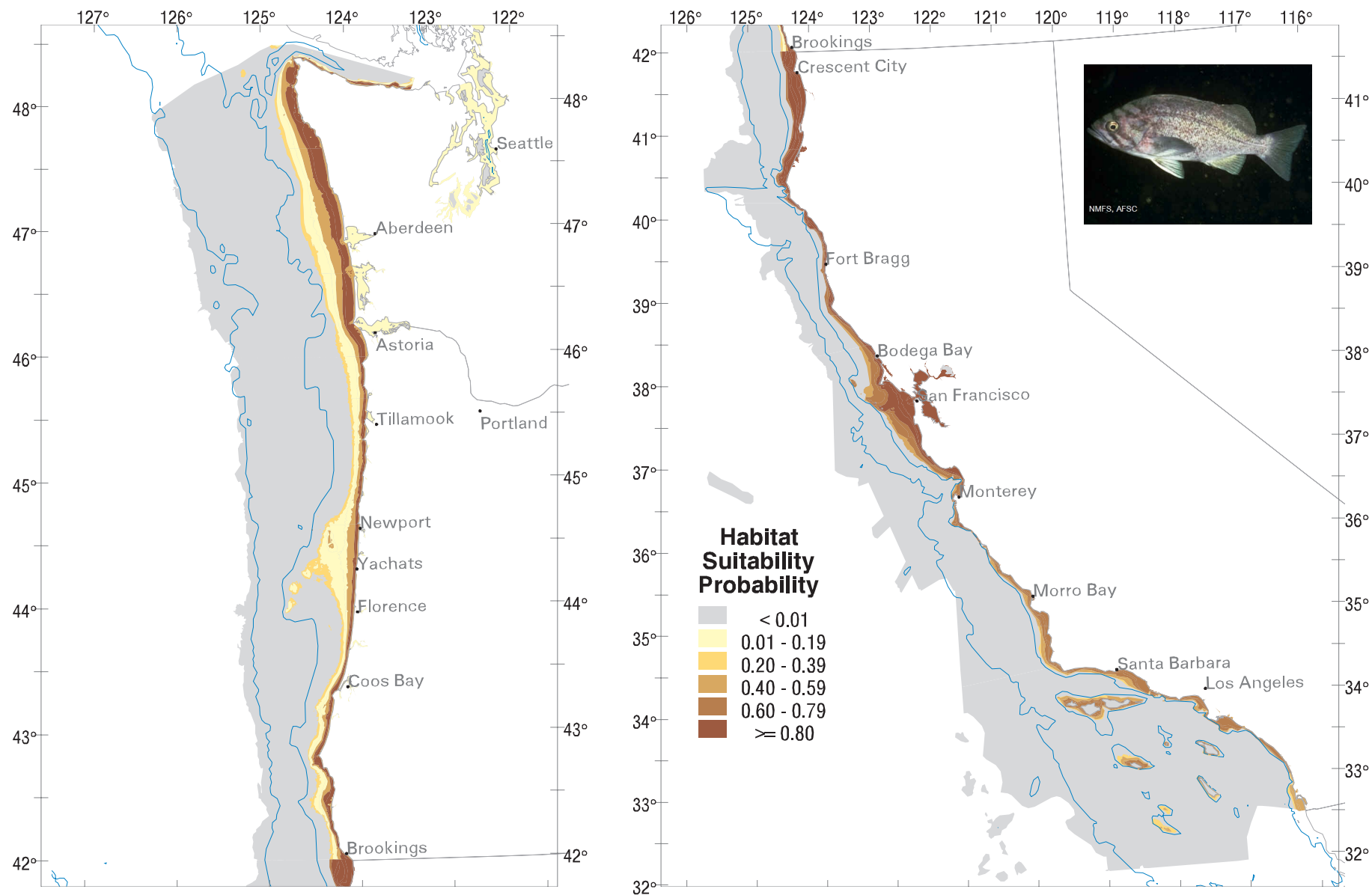|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Blue Rockfish - Larvae

Habitat Suitability Probability

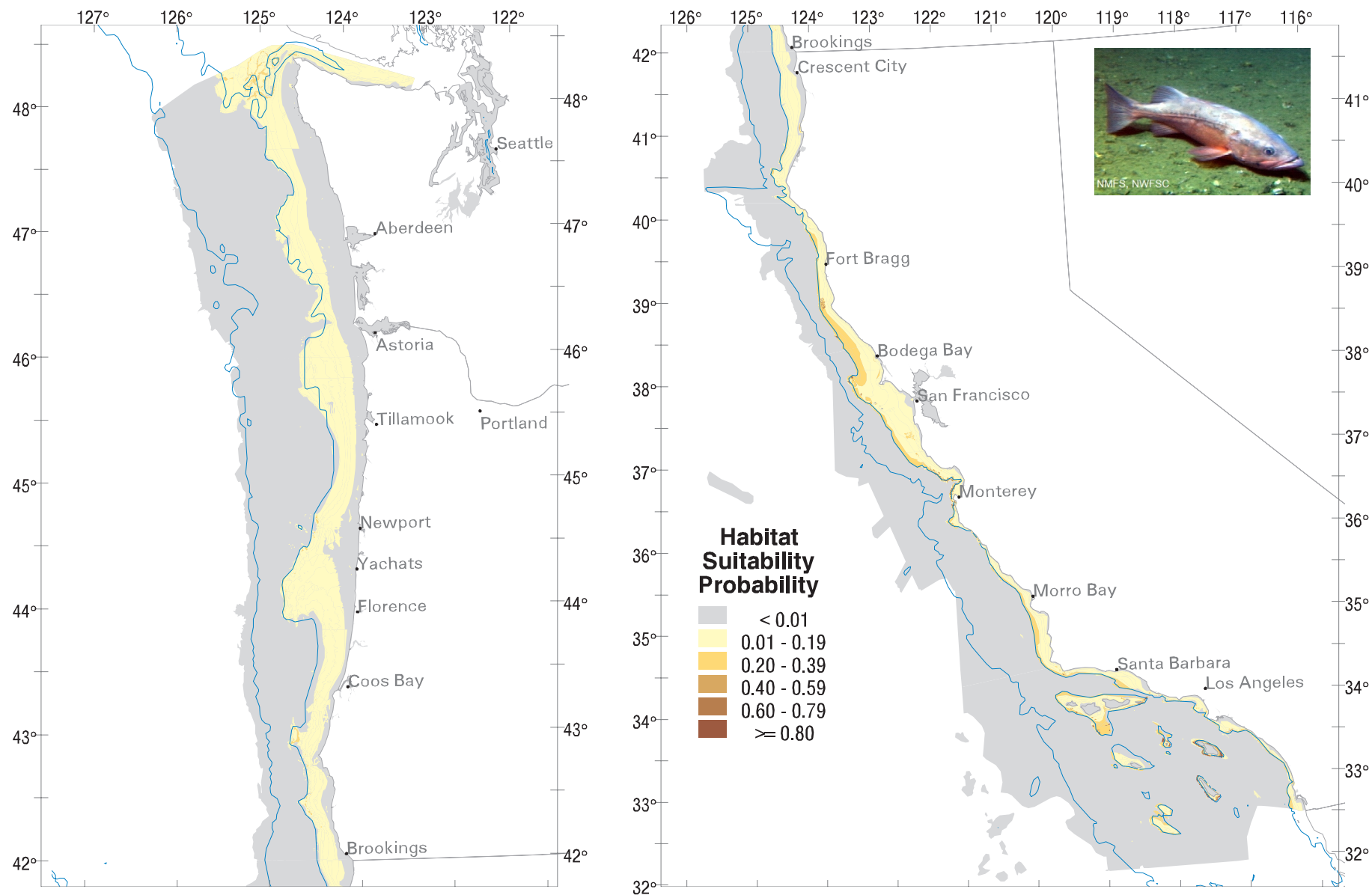|	
☐	< 0.01
☐	0.01 - 0.19
☐	0.20 - 0.39
☐	0.40 - 0.59
☐	0.60 - 0.79
☐	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD
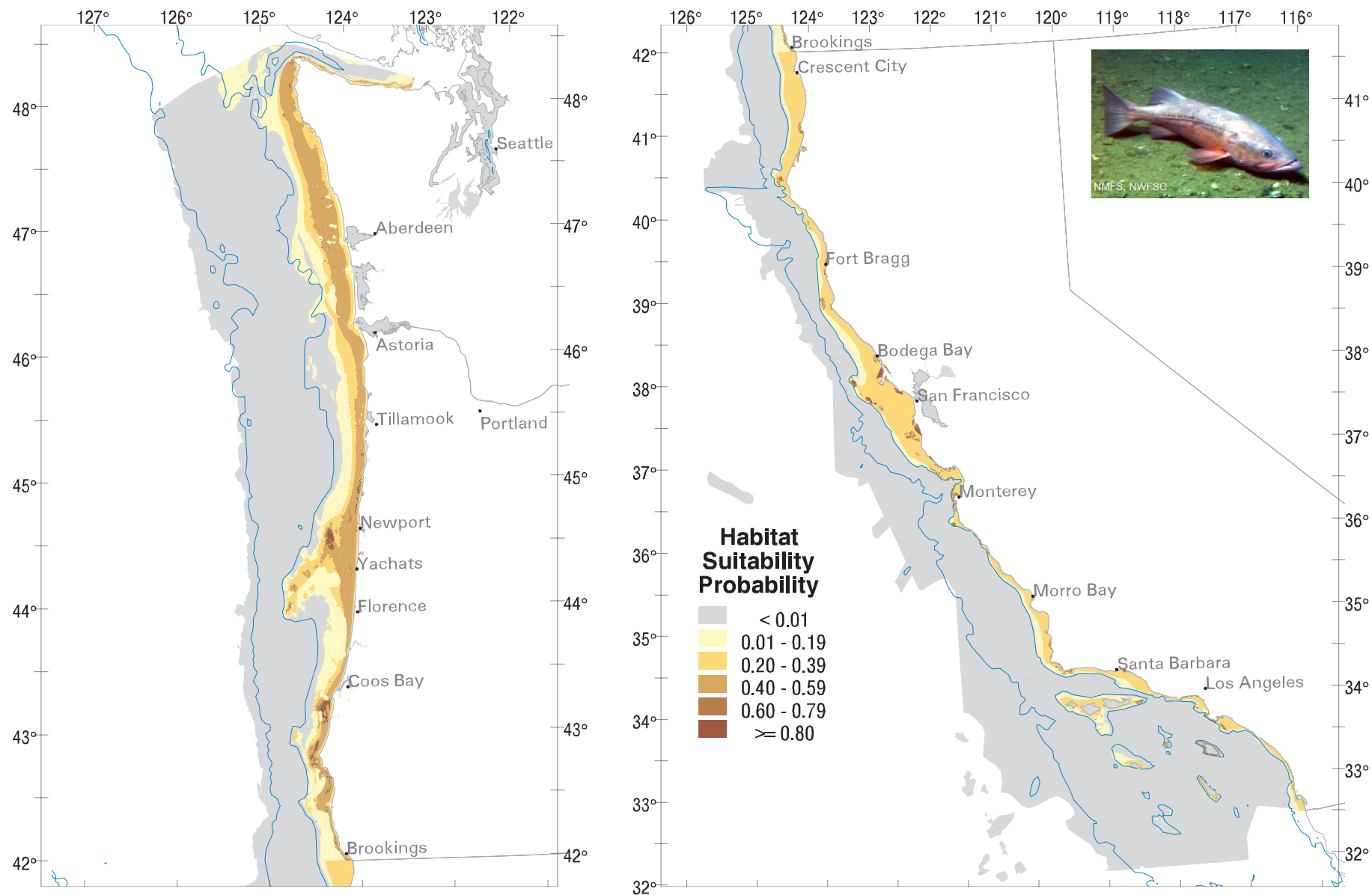
Pacific Coast Groundfish EFH FEIS

December 2005

Bocaccio - Adult

NMFS, NWFSC

Habitat Suitability Probability

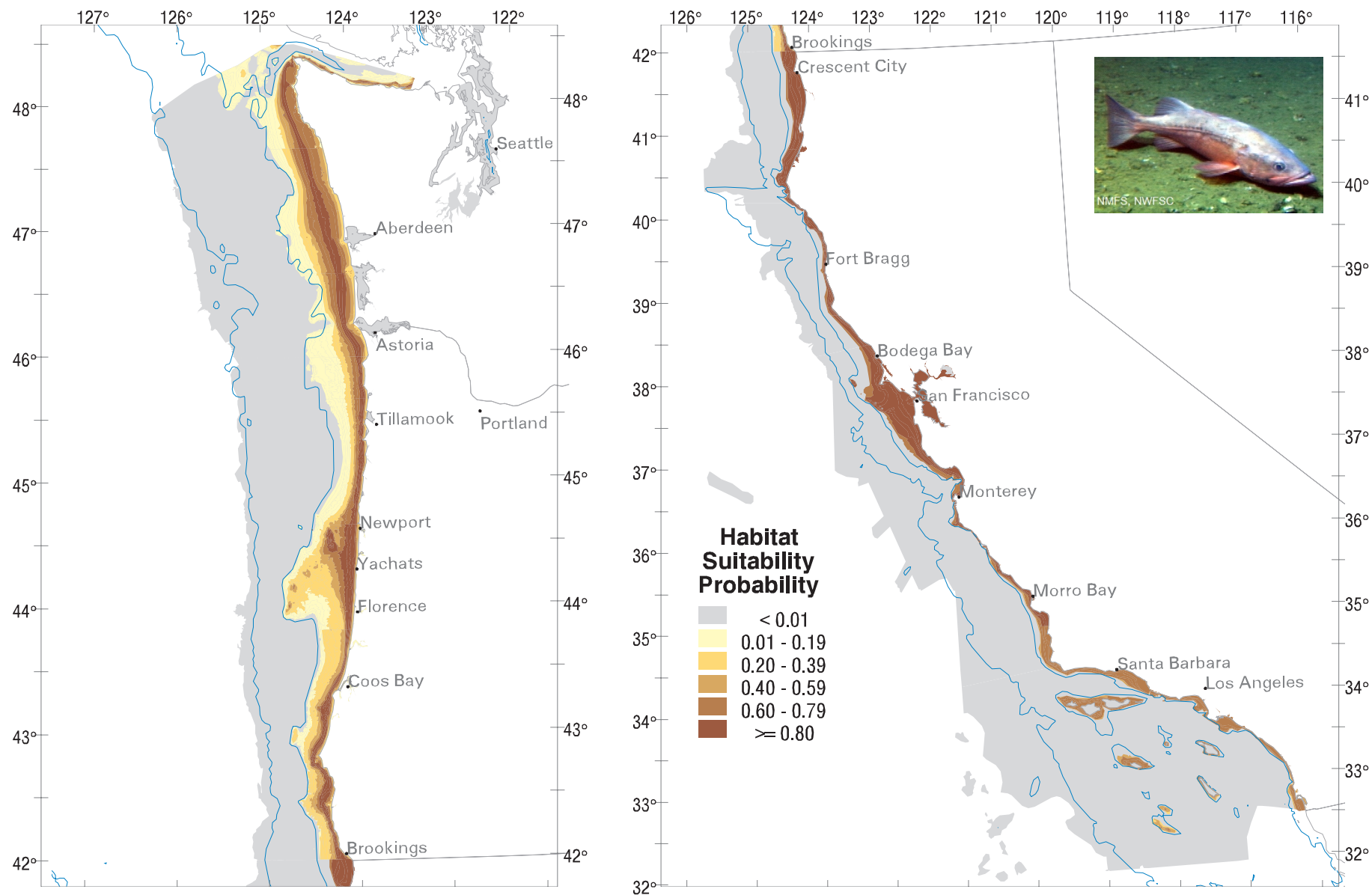|	
▓	< 0.01
▓	0.01 - 0.19
▓	0.20 - 0.39
▓	0.40 - 0.59
▓	0.60 - 0.79
▓	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey+

Pacific Coast Groundfish EFH FEIS   December 2005

Bocaccio - Juvenile

Habitat Suitability Probability

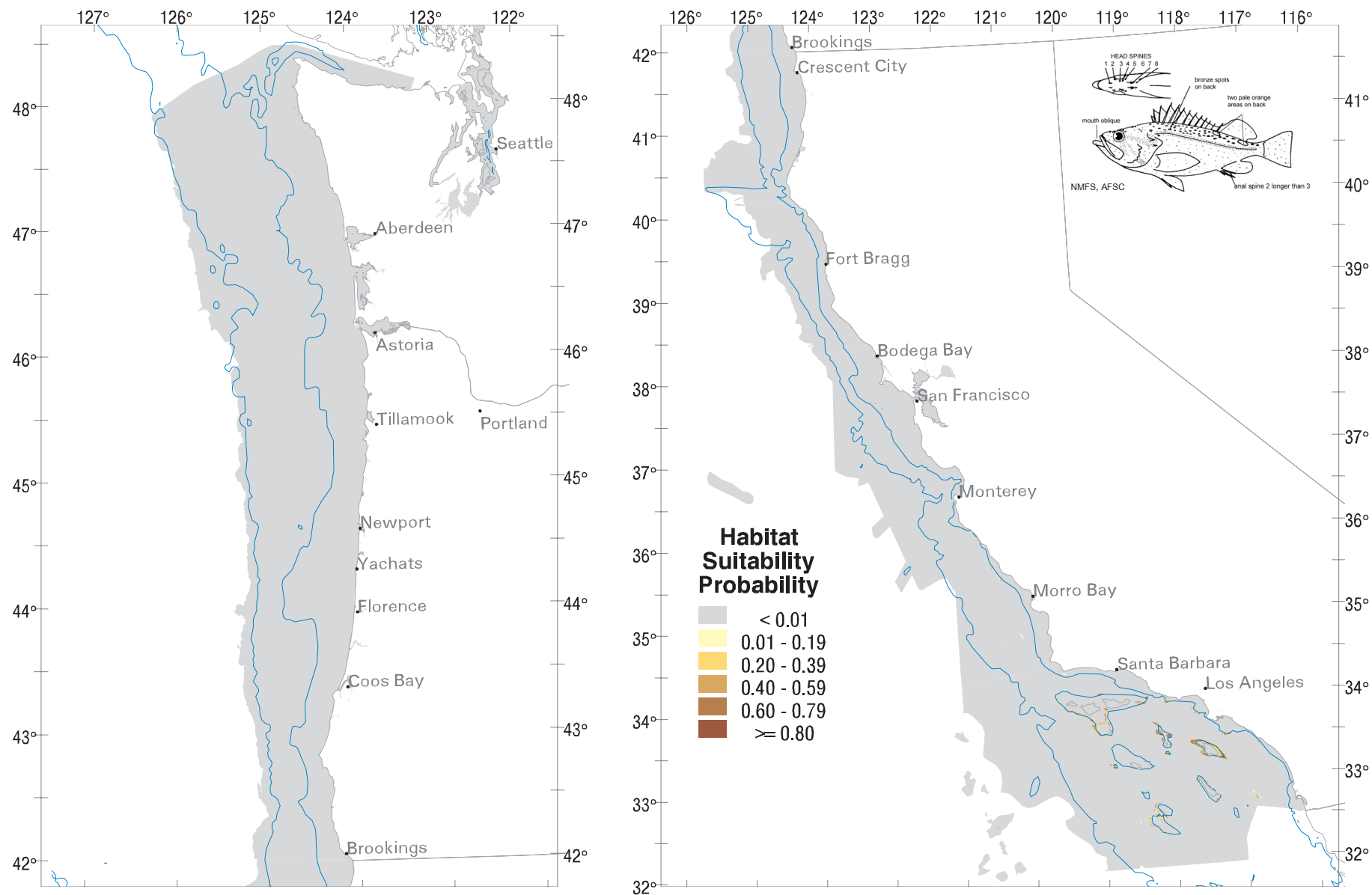|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Bocaccio - Larvae

Habitat Suitability Probability

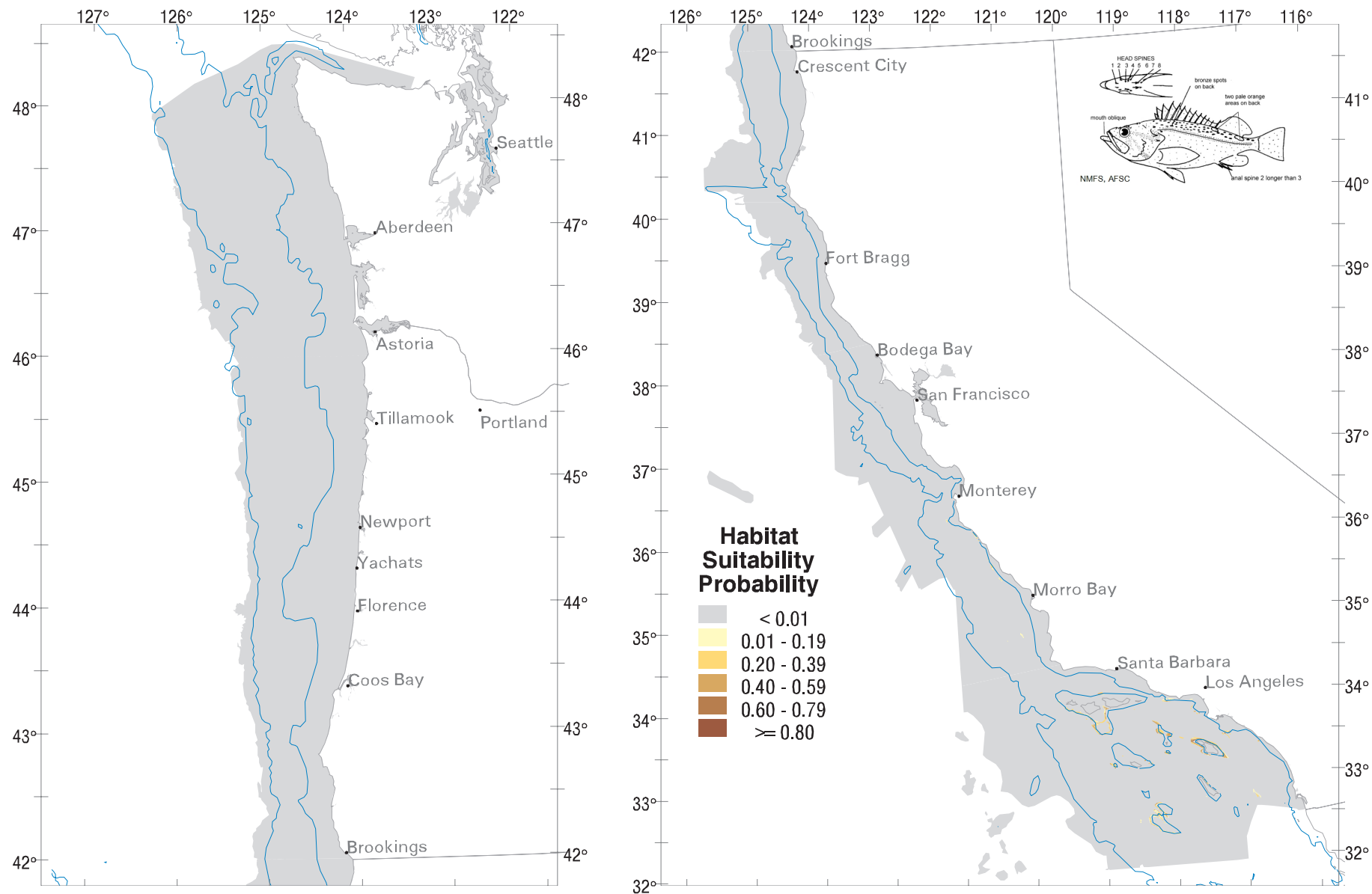|	
![grey]	< 0.01
![light yellow]	0.01 - 0.19
![yellow]	0.20 - 0.39
![light brown]	0.40 - 0.59
![brown]	0.60 - 0.79
![dark brown]	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Bronzespotted Rockfish - Adult

HEAD SPINES
1 2 3 4 5 6 7 8

bronze spots
on back

two pale orange
areas on back

mouth oblique

NMFS, AFSC

anal spine 2 longer than 3

**Habitat
Suitability
Probability**

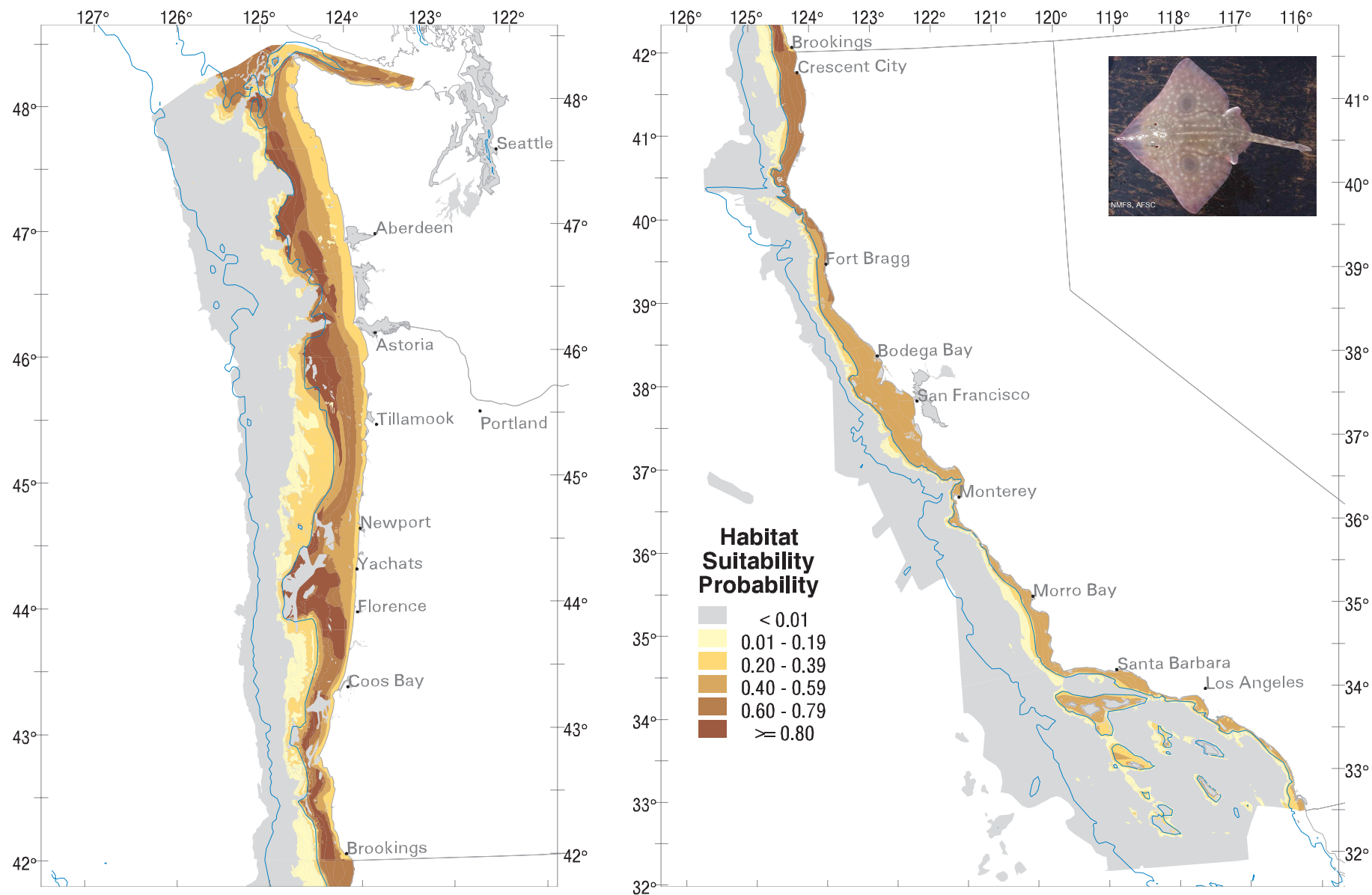|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Bronzespotted Rockfish - Juvenile

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

HEAD SPINES
1 2 3 4 5 6 7 8

bronze spots on back

two pale orange areas on back

mouth oblique

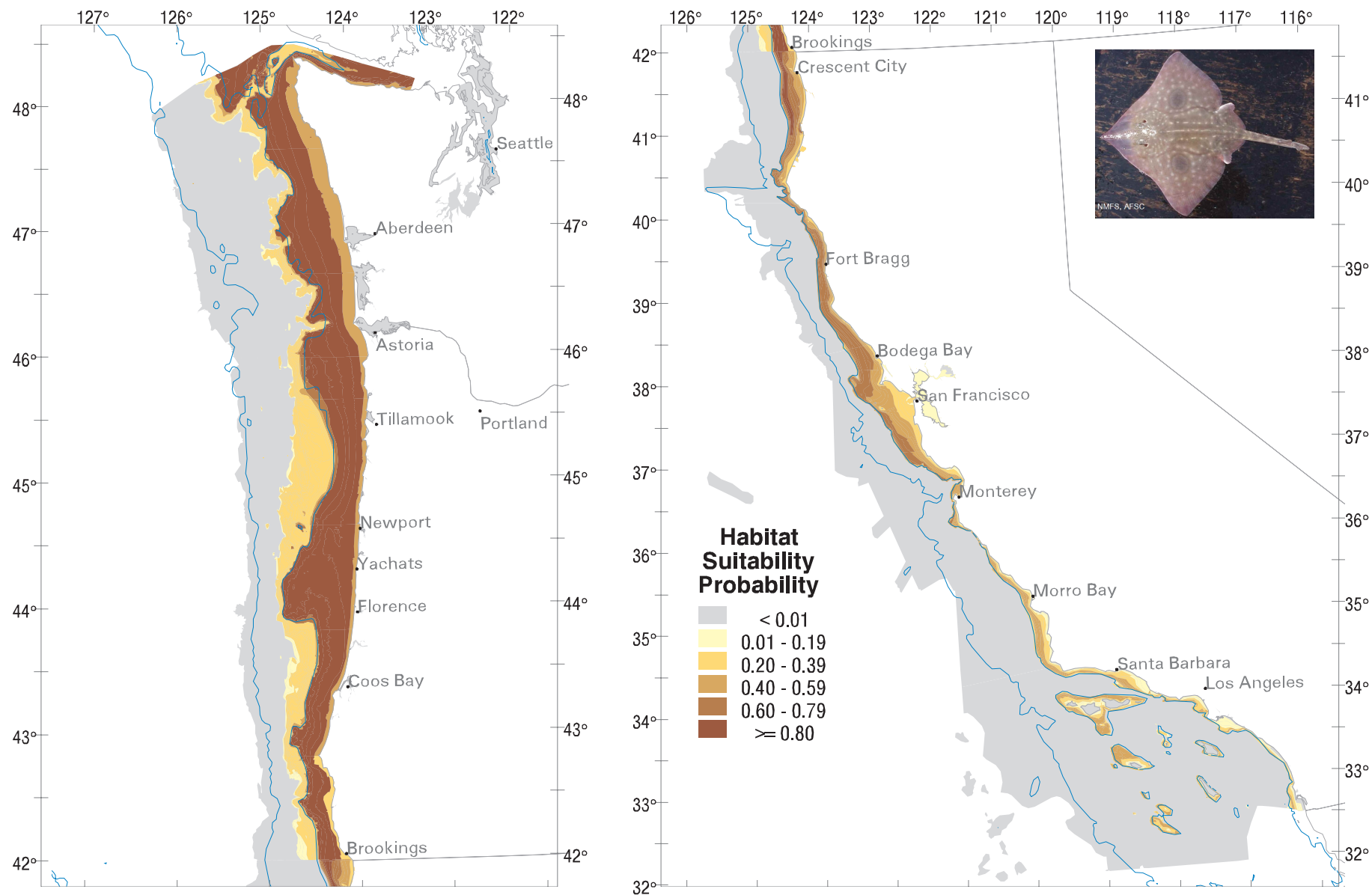anal spine 2 longer than 3

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Big Skate - Adult

Habitat Suitability Probability

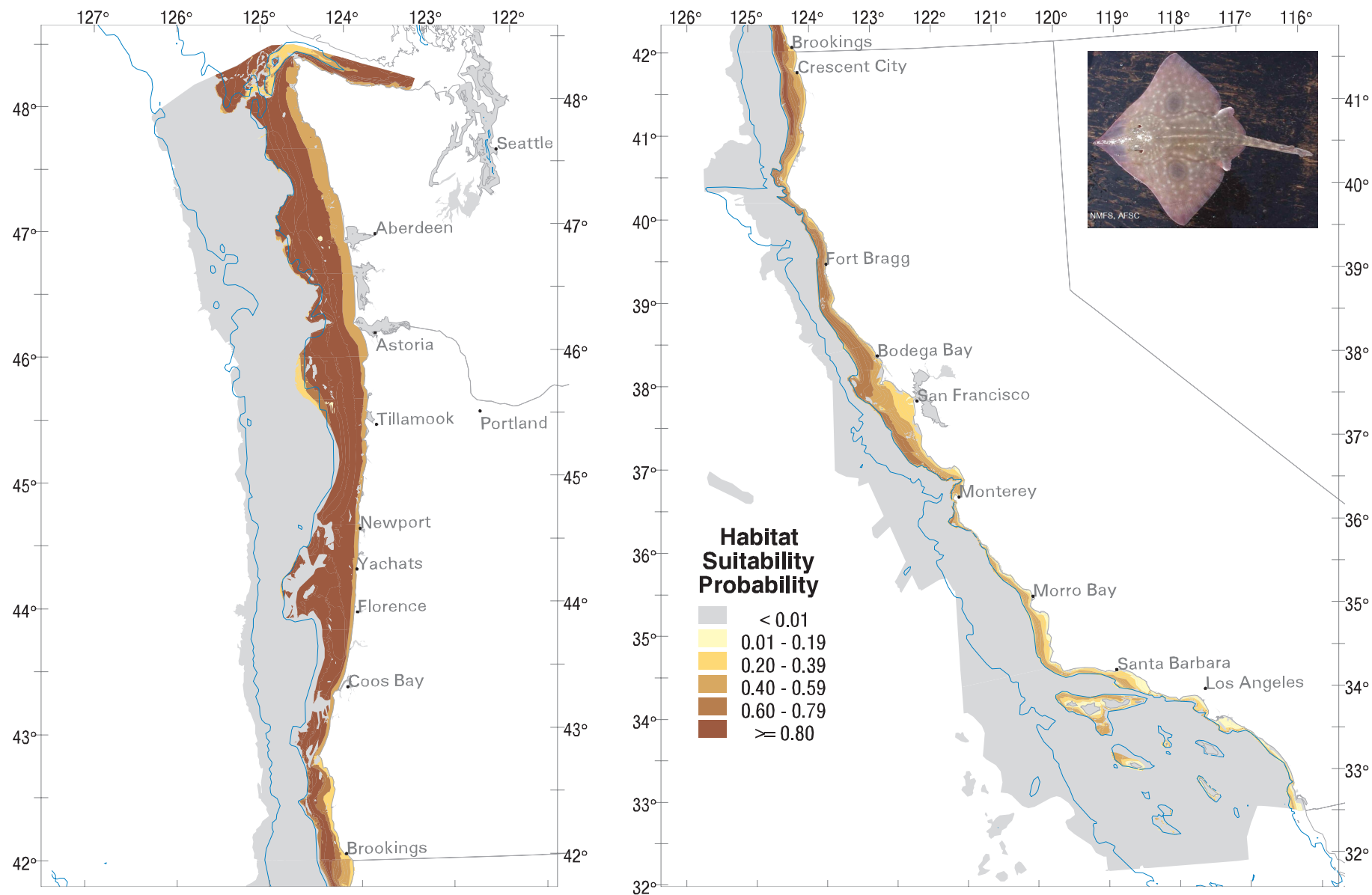|	
▨	< 0.01
▨	0.01 - 0.19
▨	0.20 - 0.39
▨	0.40 - 0.59
▨	0.60 - 0.79
▨	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Big Skate - Eggs

**Habitat
Suitability
Probability**

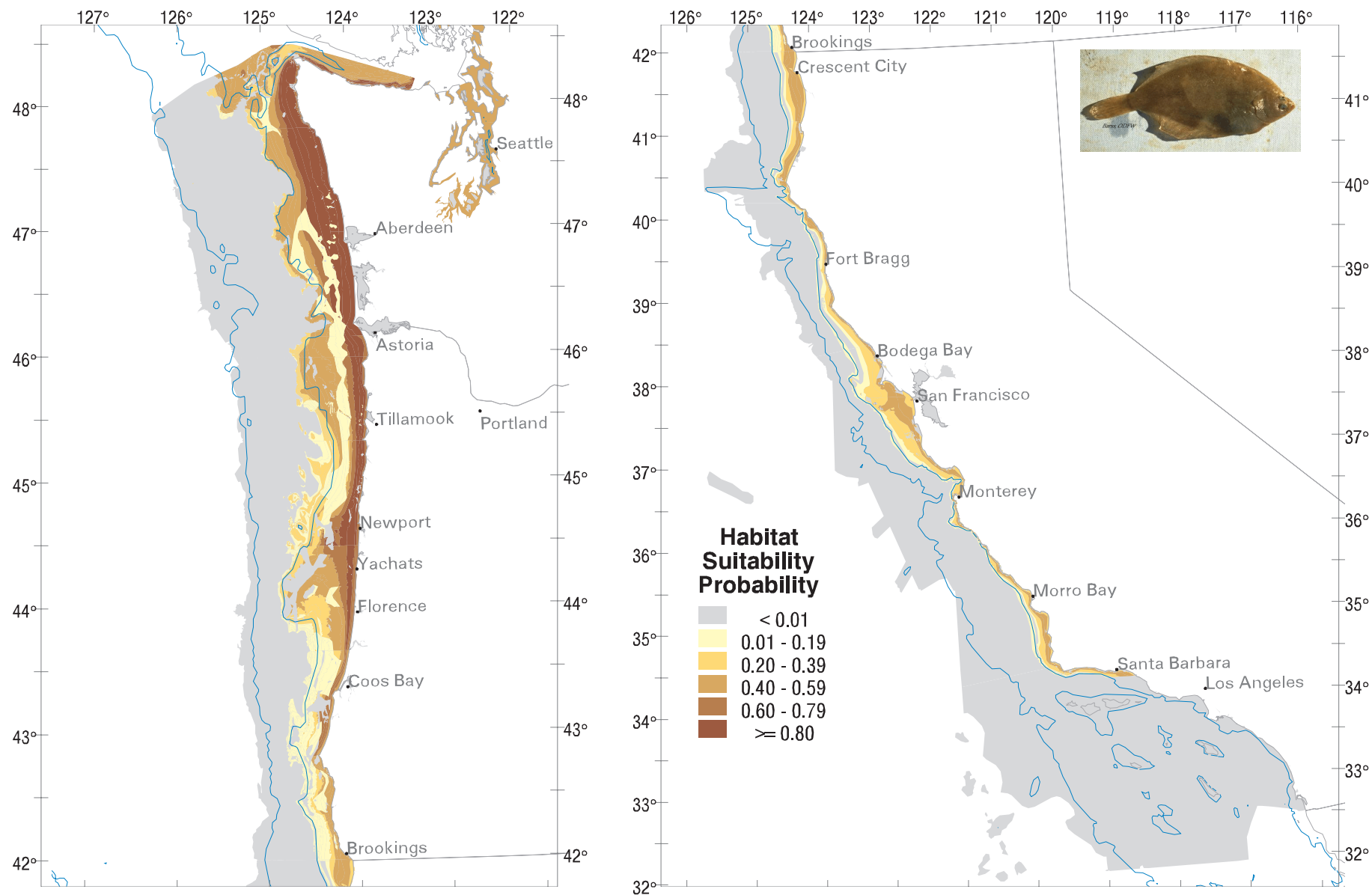|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

NMFS, AFSC

*Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD*

Pacific Coast Groundfish EFH FEIS

December 2005

Big Skate - Juvenile

Habitat Suitability Probability

(gray)	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD
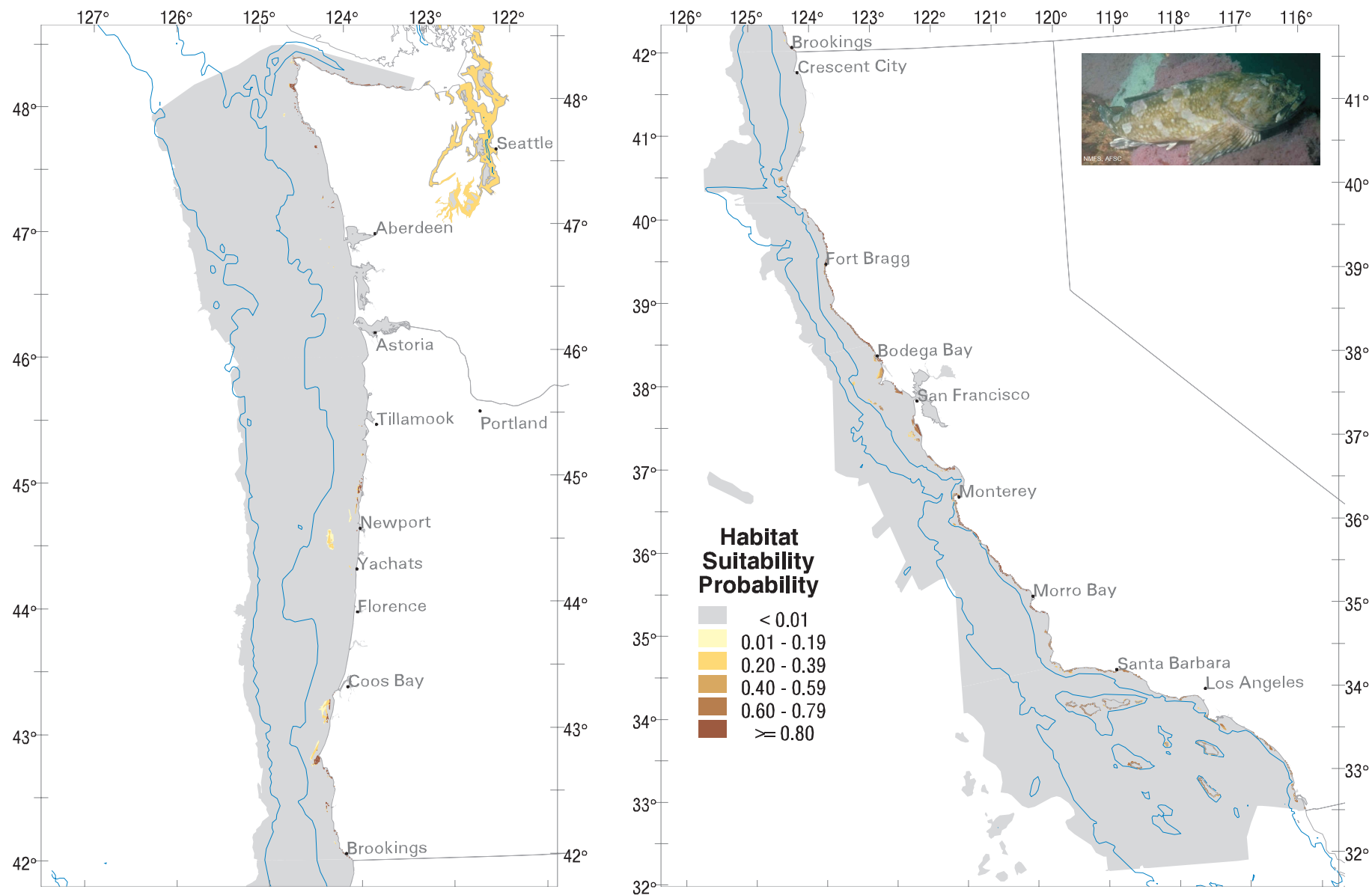
Pacific Coast Groundfish EFH FEIS

December 2005

Butter Sole - Adult

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Cabezon - Adult

Habitat Suitability Probability

▨	< 0.01
▨	0.01 - 0.19
▨	0.20 - 0.39
▨	0.40 - 0.59
▨	0.60 - 0.79
▨	>= 0.80

Brookings
Crescent City
Fort Bragg
Bodega Bay
San Francisco
Monterey
Morro Bay
Santa Barbara
Los Angeles

Seattle
Aberdeen
Astoria
Portland
Tillamook
Newport
Yachats
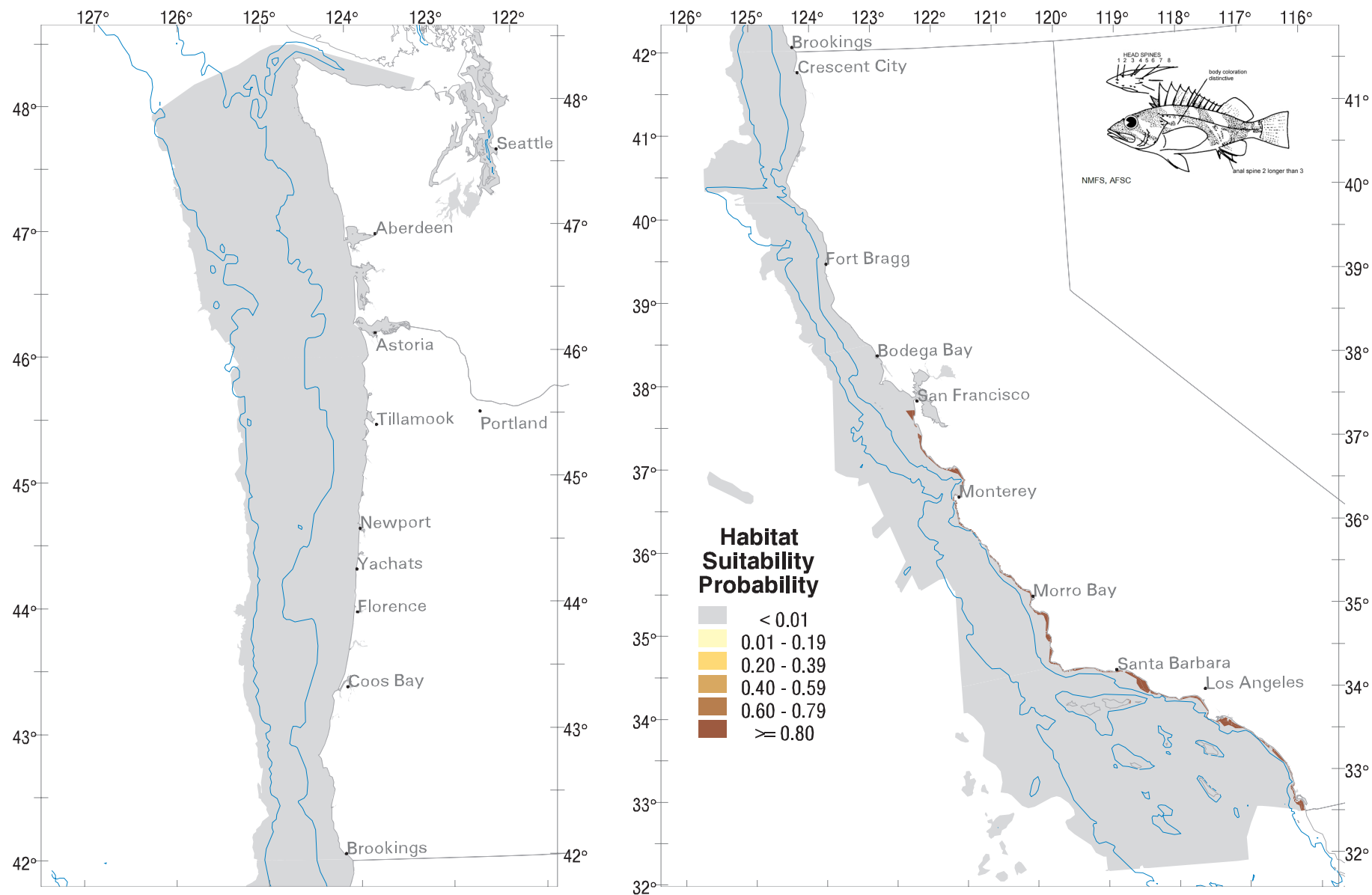Florence
Coos Bay
Brookings

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date : October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from : HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Calico Rockfish - Adult

**Habitat
Suitability
Probability**

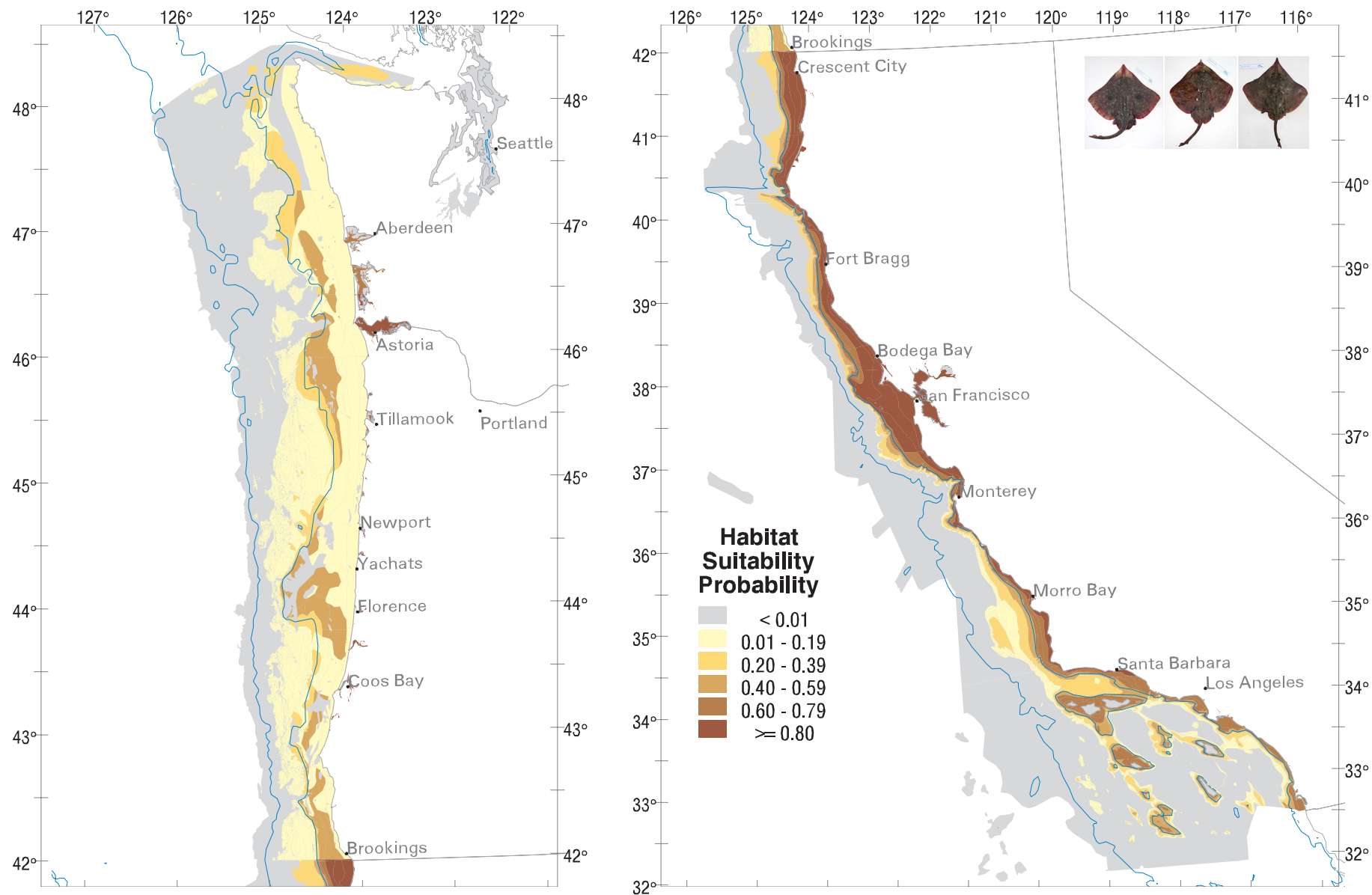|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

*Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD*

Pacific Coast Groundfish EFH FEIS

December 2005
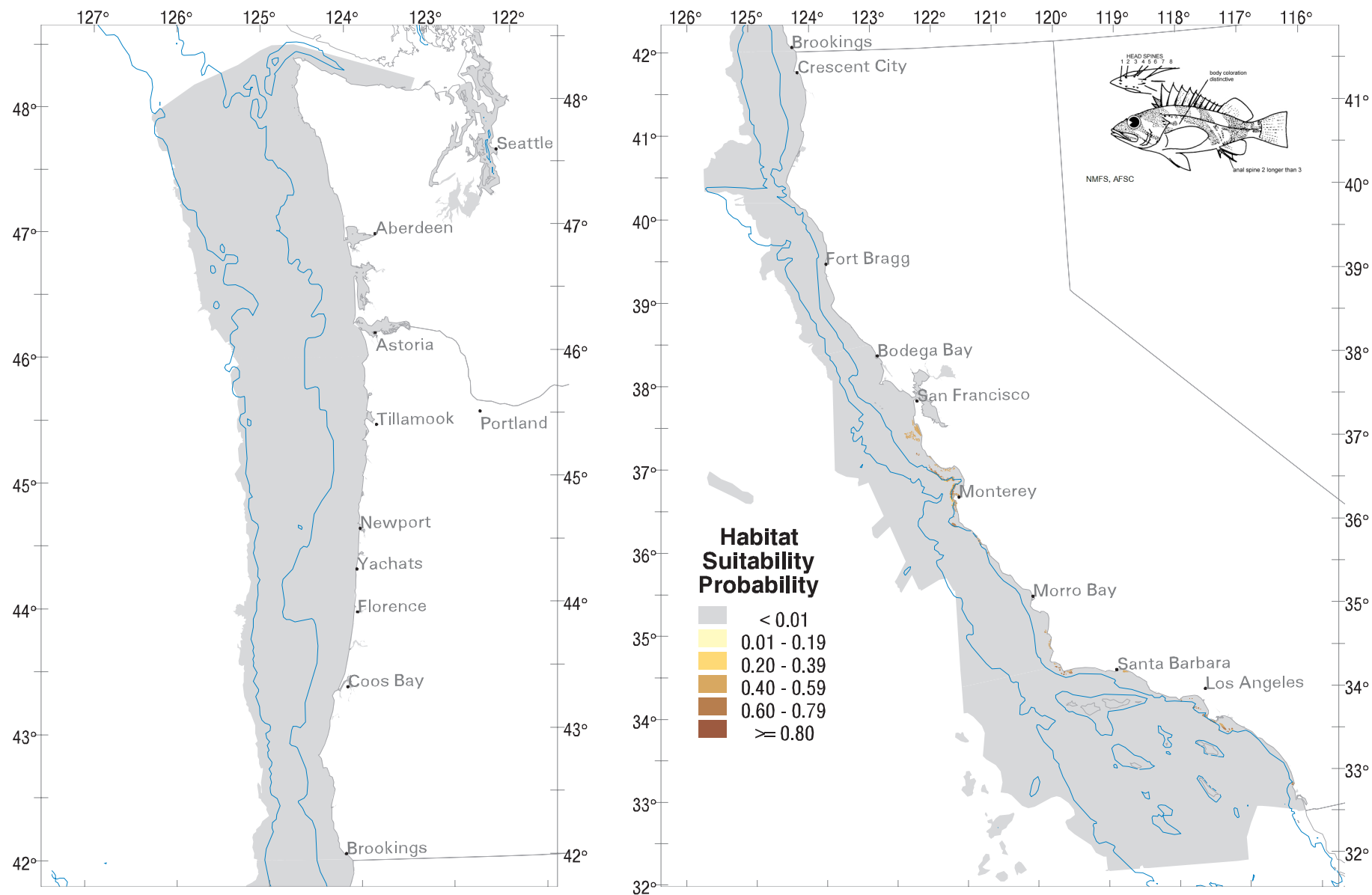
Calico Rockfish - Juvenile

Habitat Suitability Probability

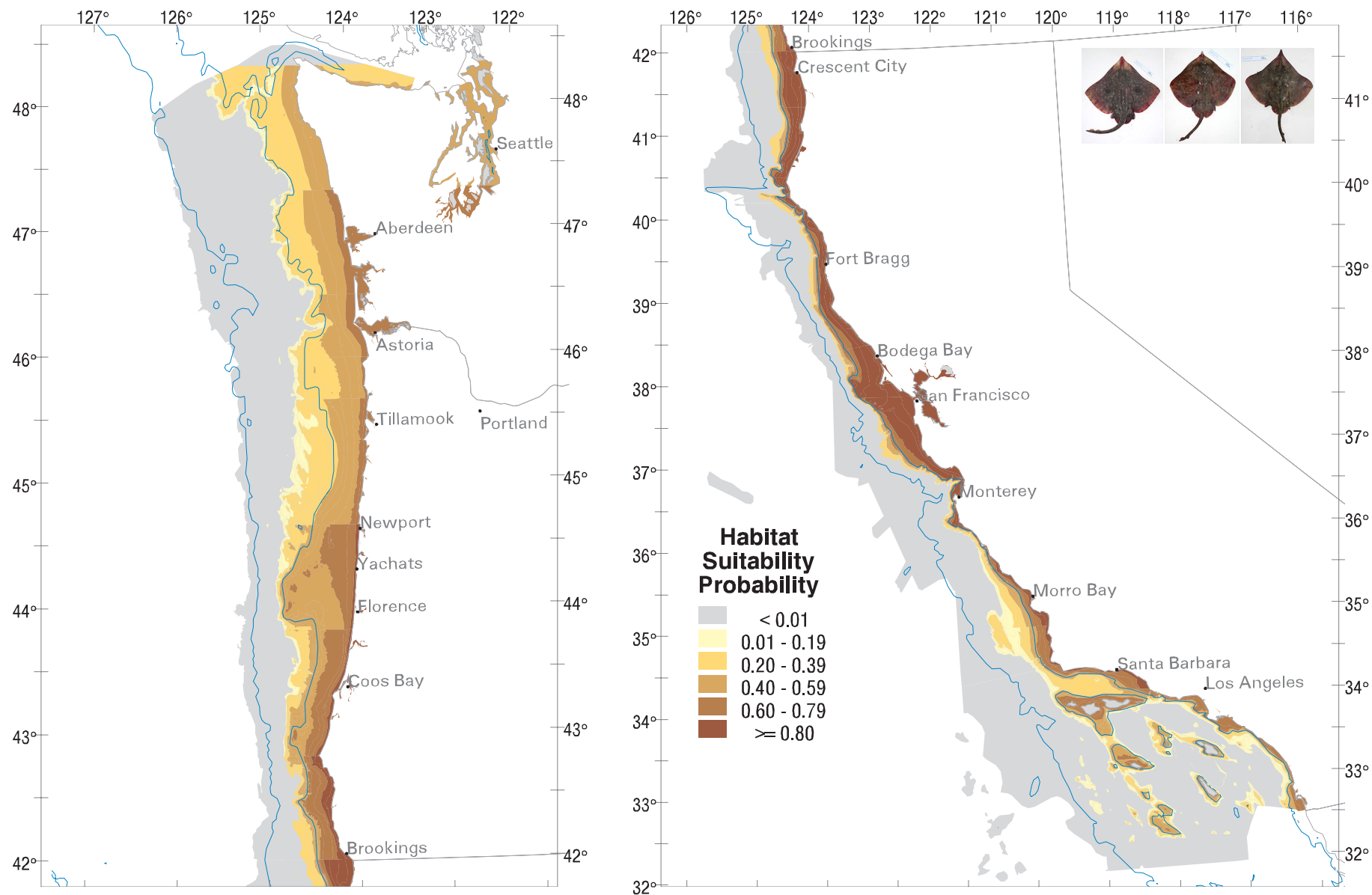|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date : October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from : HUD

California Skate - Adult

Habitat Suitability Probability

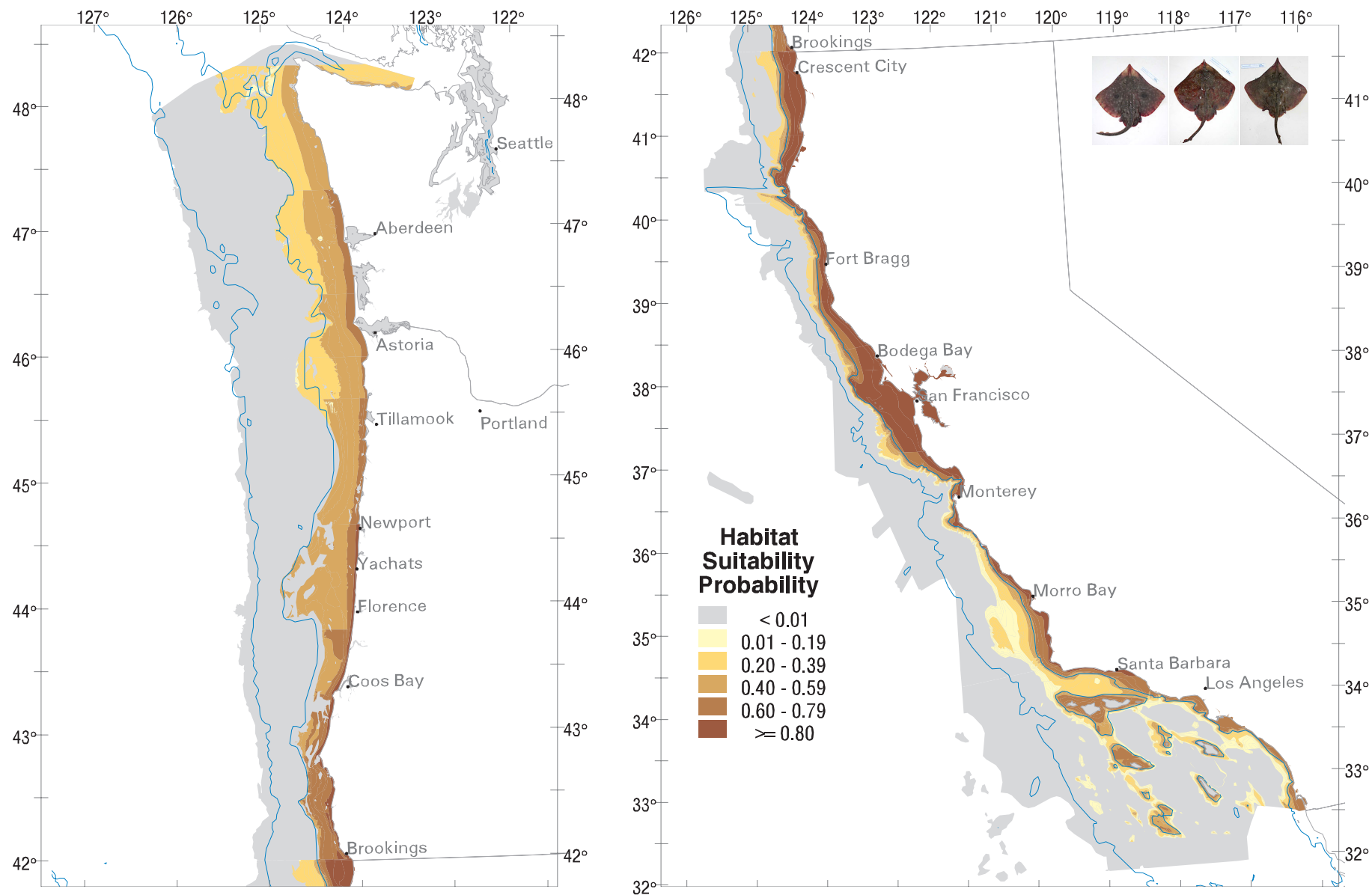|	
▢	< 0.01
▢	0.01 - 0.19
▢	0.20 - 0.39
▢	0.40 - 0.59
▢	0.60 - 0.79
▢	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

California Skate - Eggs

Habitat Suitability Probability

- < 0.01
- 0.01 - 0.19
- 0.20 - 0.39
- 0.40 - 0.59
- 0.60 - 0.79
- >= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date : October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from : HUD

Pacific Coast Groundfish EFH FEIS

December 2005

California Skate - Juvenile

Habitat Suitability Probability

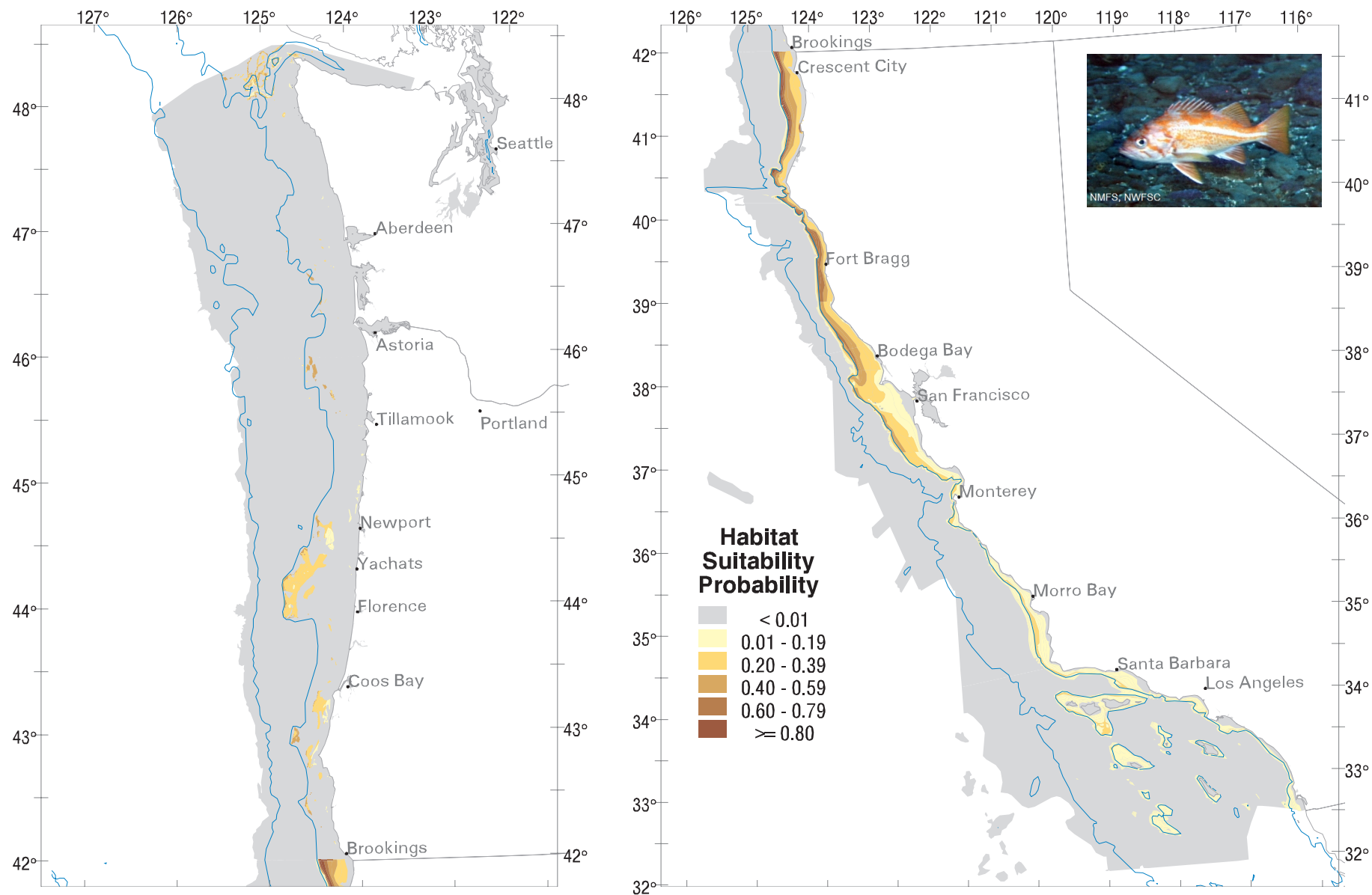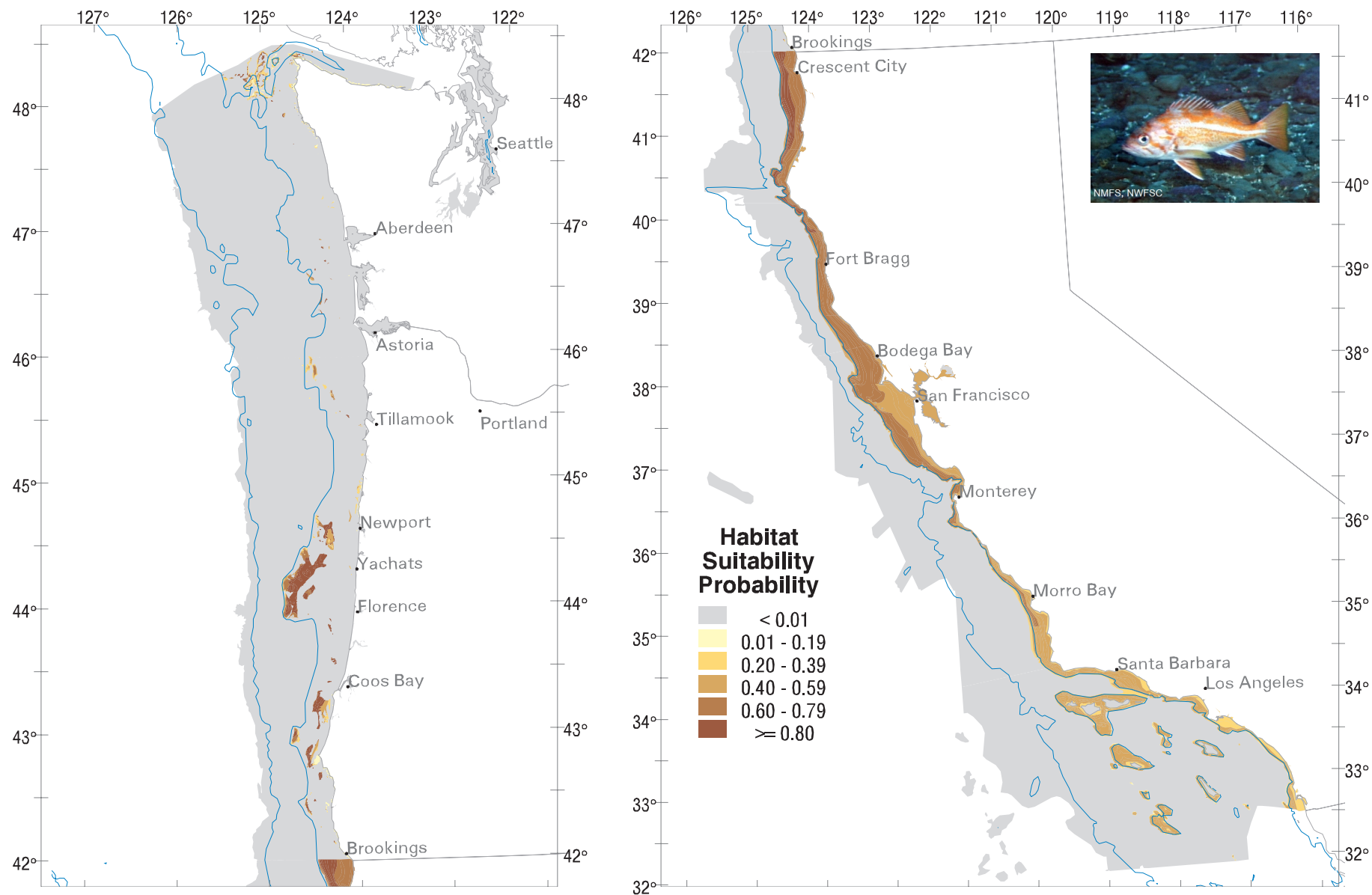|	
(gray)	< 0.01
(pale yellow)	0.01 - 0.19
(yellow)	0.20 - 0.39
(light brown)	0.40 - 0.59
(brown)	0.60 - 0.79
(dark brown)	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Canary Rockfish - Adult

127° 126° 125° 124° 123° 122°

48°
47°
46°
45°
44°
43°
42°

Seattle

Aberdeen

Astoria
Portland

Tillamook

Newport
Yachats

Florence

Coos Bay

Brookings

126° 125° 124° 123° 122° 121° 120° 119° 118° 117° 116°

42°
41°
40°
39°
38°
37°
36°
35°
34°
33°
32°

Brookings
Crescent City

NMFS, NWFSC

Fort Bragg

Bodega Bay
San Francisco

Monterey

Morro Bay

Santa Barbara
Los Angeles

Habitat Suitability Probability

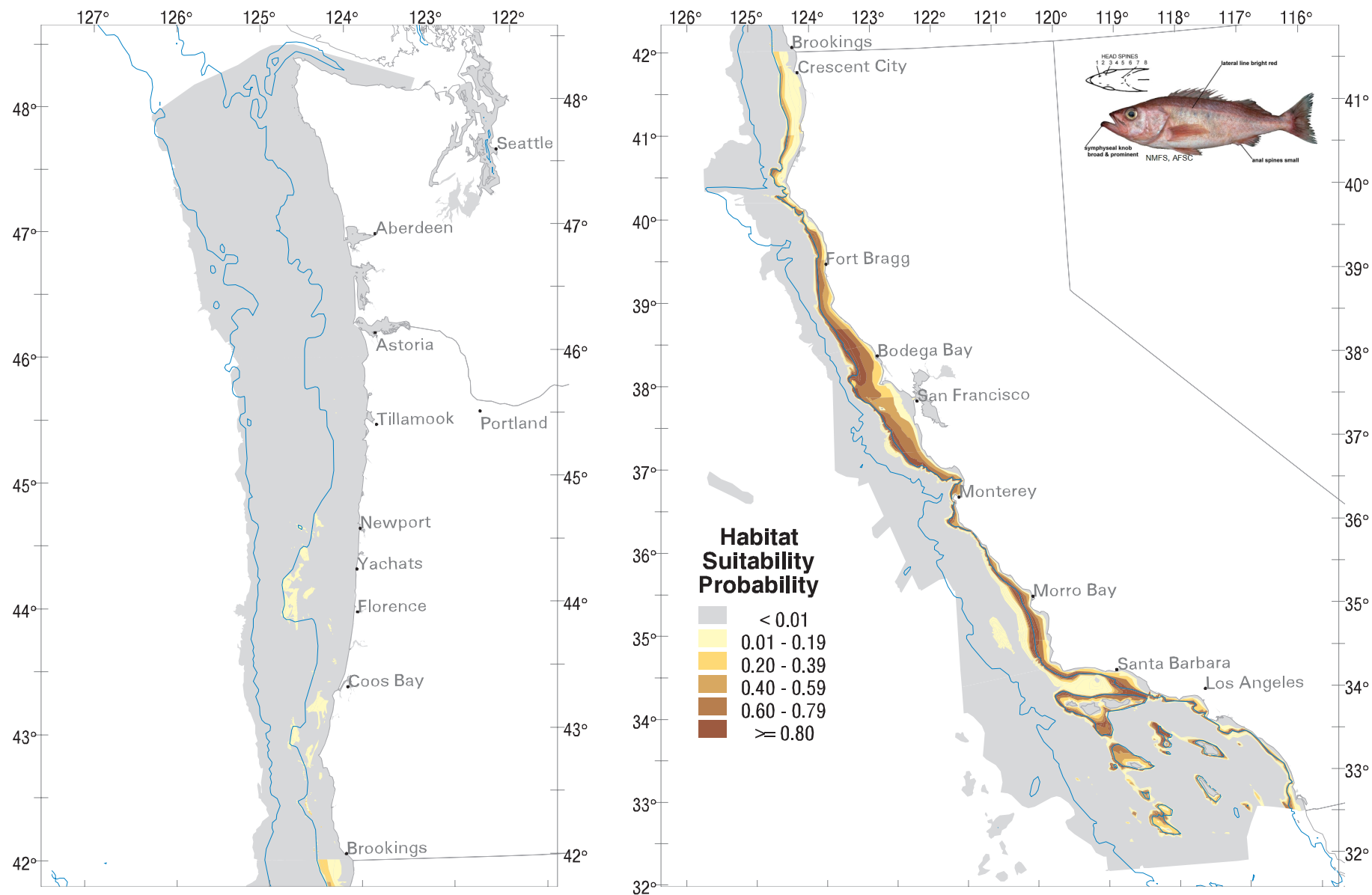|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey+

Pacific Coast Groundfish EFH FEIS

December 2005

Canary Rockfish - Juvenile

Habitat Suitability Probability

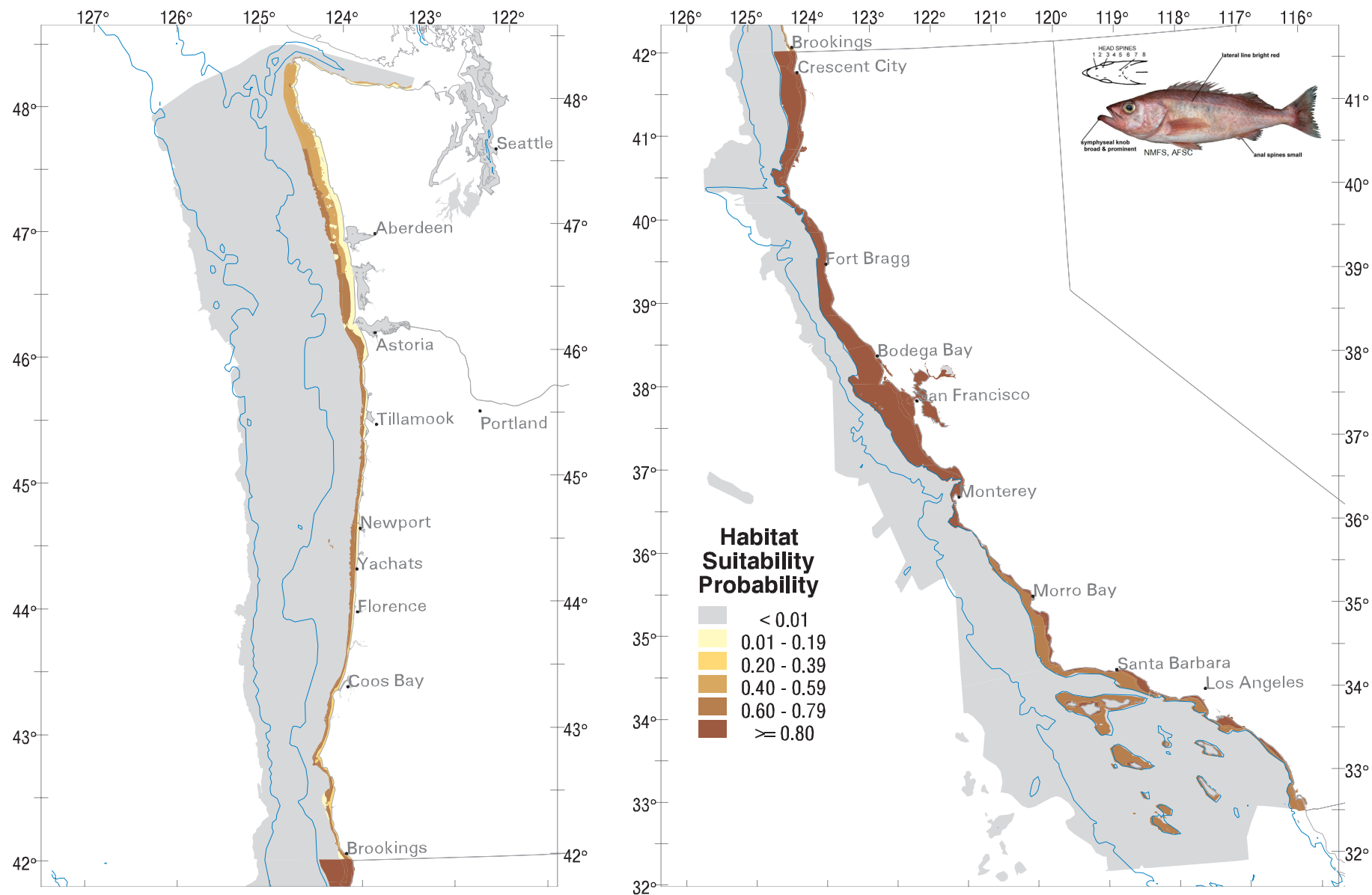|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Chilipepper - Adult

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

HEAD SPINES
1 2 3 4 5 6 7 8

lateral line bright red

symphyseal knob broad & prominent
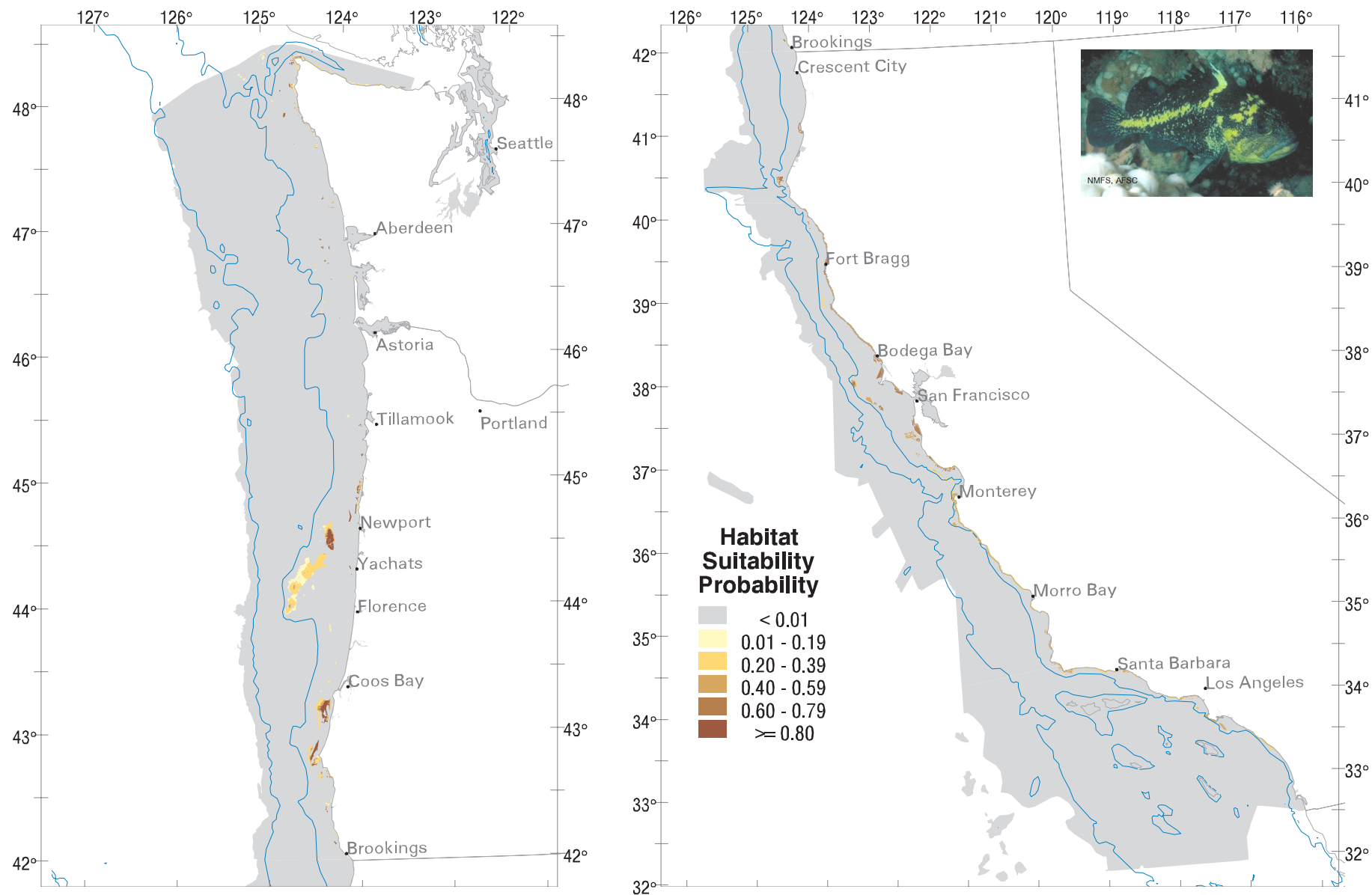
anal spines small

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey+

Pacific Coast Groundfish EFH FEIS

December 2005

Chilipepper - Juvenile

HEAD SPINES
1 2 3 4 5 6 7 8

lateral line bright red

symphyseal knob
broad & prominent   NMFS, AFSC

anal spines small

**Habitat
Suitability
Probability**

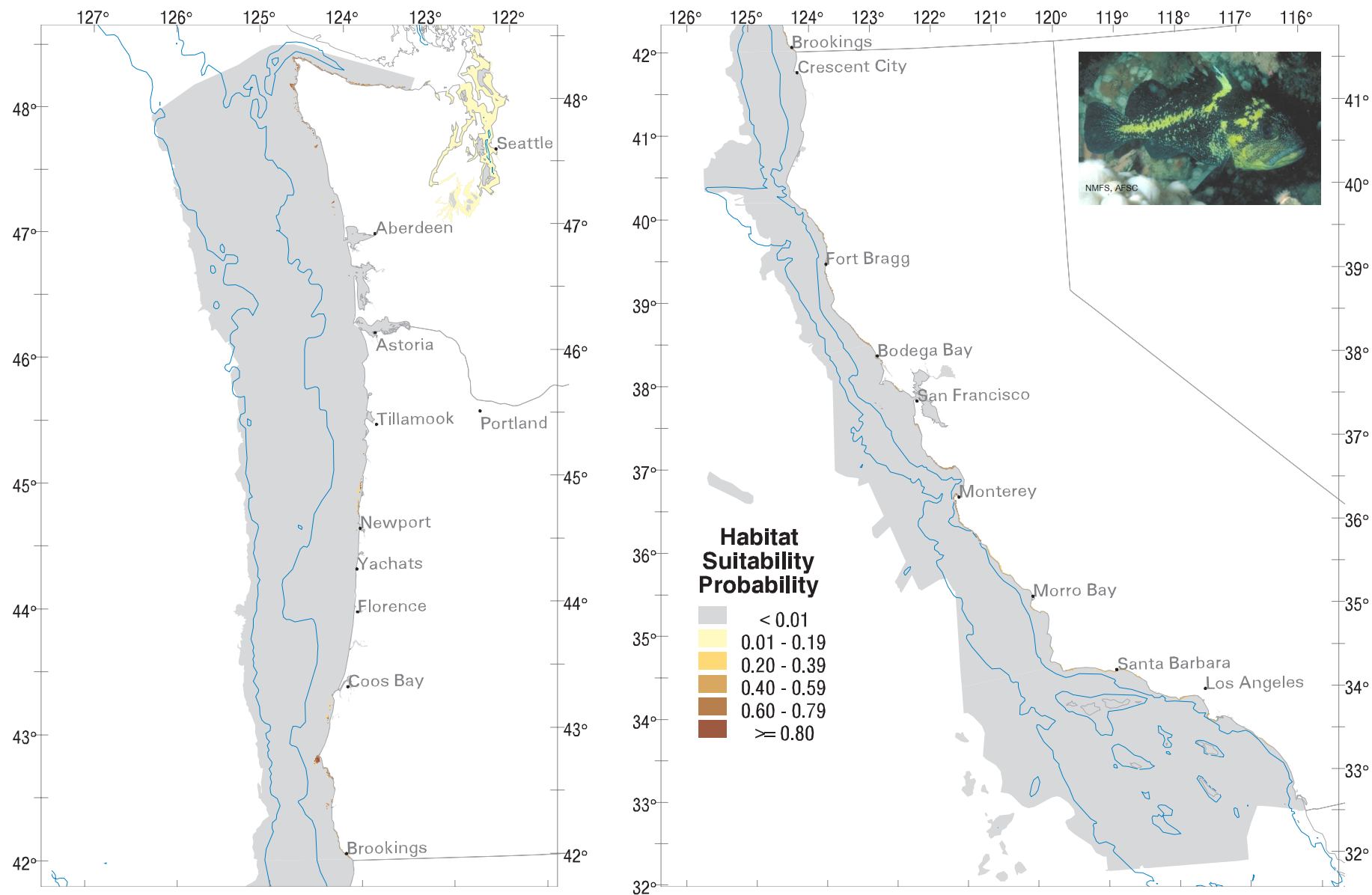|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

China Rockfish - Adult

NMFS, AFSC

Habitat Suitability Probability

▨	< 0.01
▨	0.01 - 0.19
▨	0.20 - 0.39
▨	0.40 - 0.59
▨	0.60 - 0.79
▨	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD
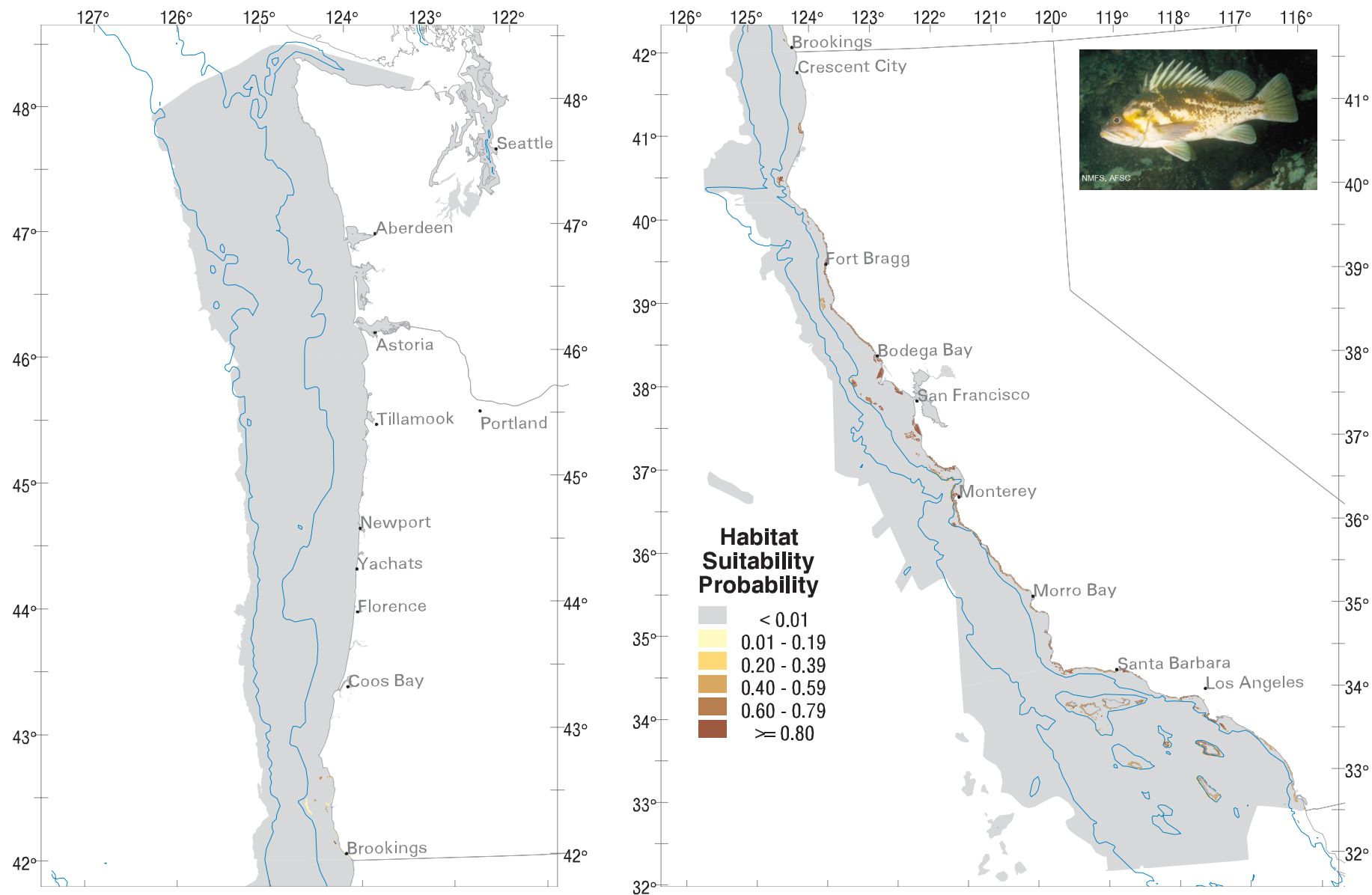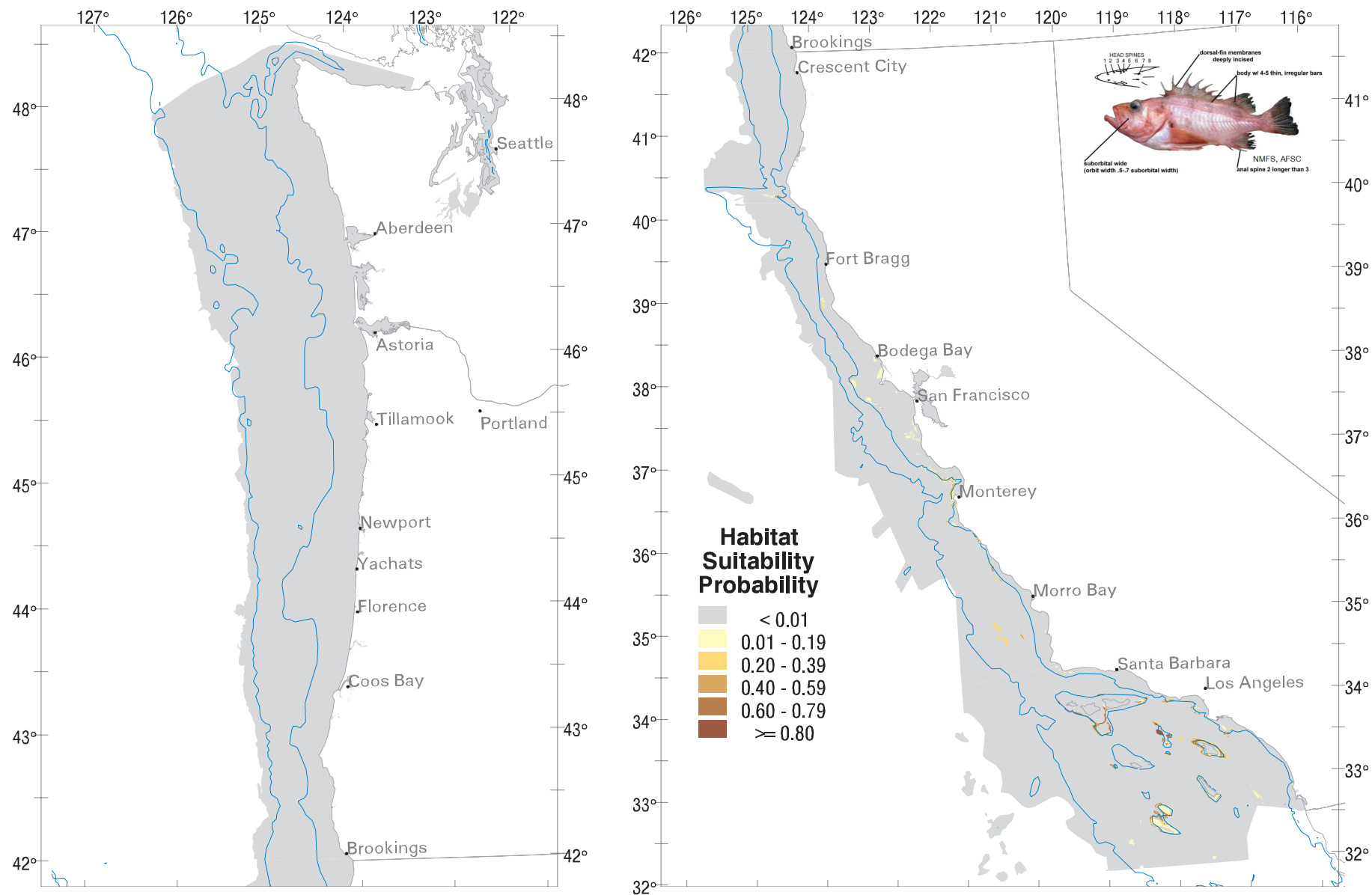
China Rockfish - Juvenile

**Habitat
Suitability
Probability**

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date : October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from : HUD

Copper Rockfish - Adult

Habitat Suitability Probability

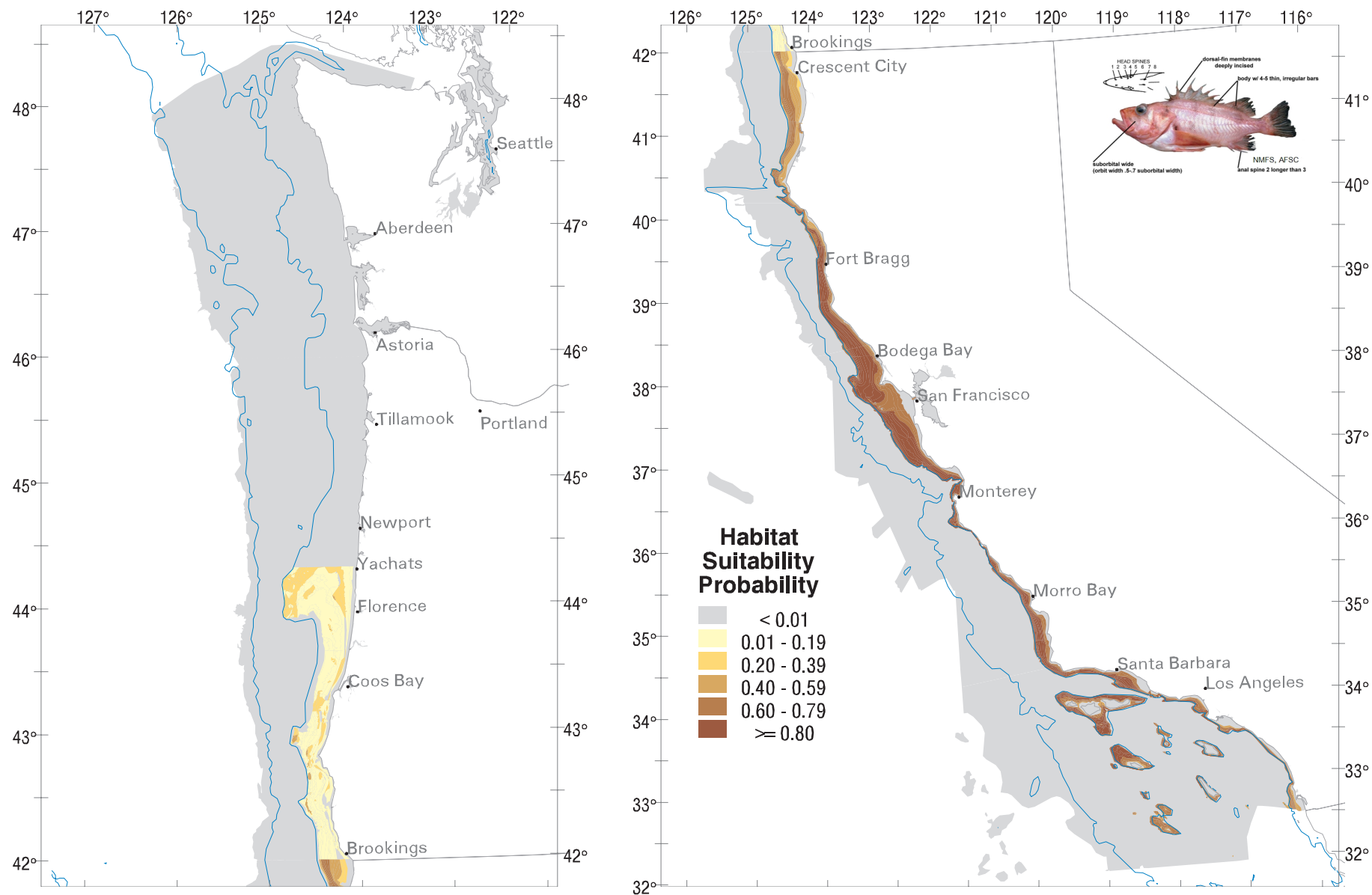|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Cowcod - Adult

Habitat Suitability Probability

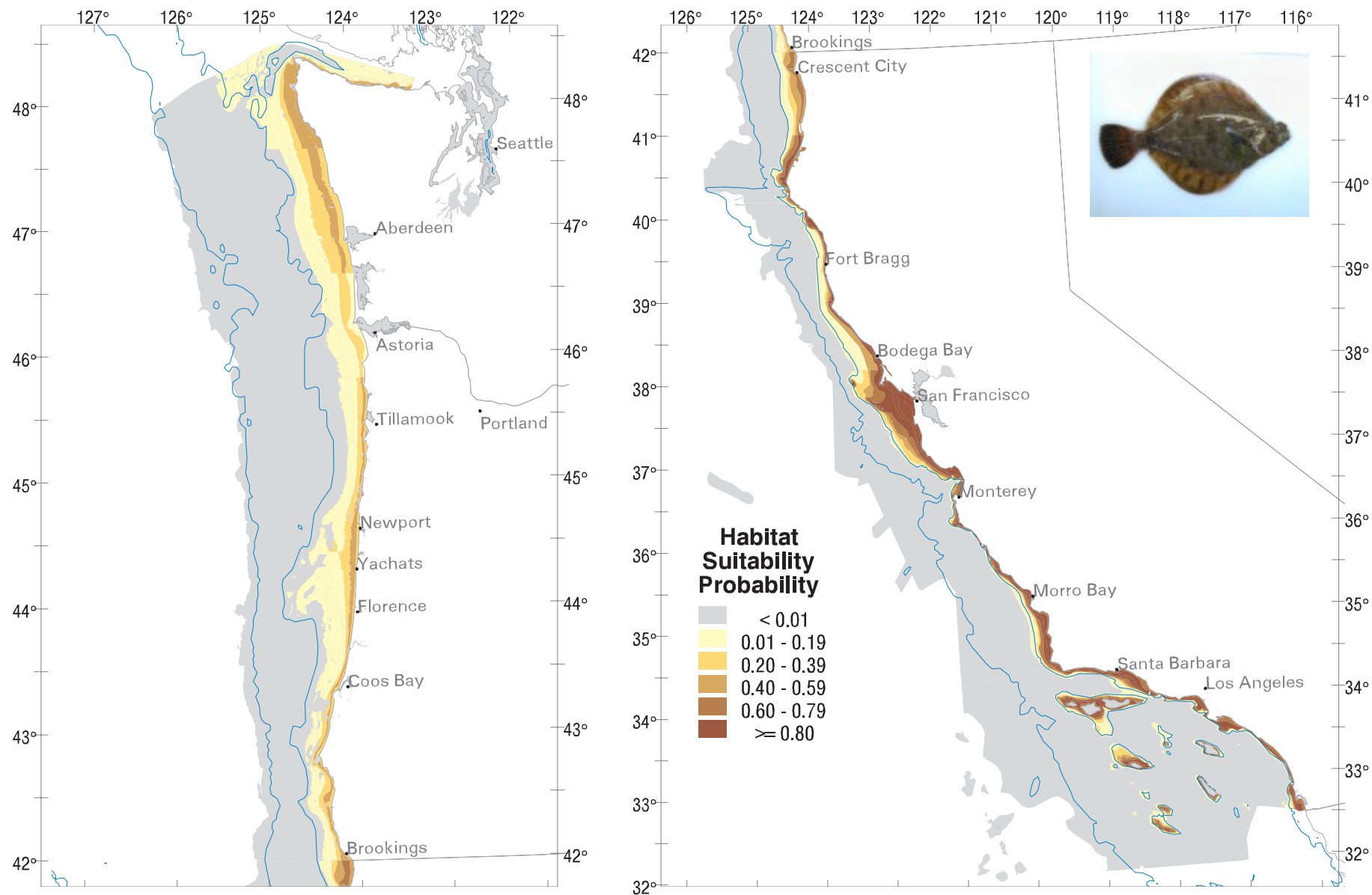|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Cowcod - Juvenile

Habitat Suitability Probability

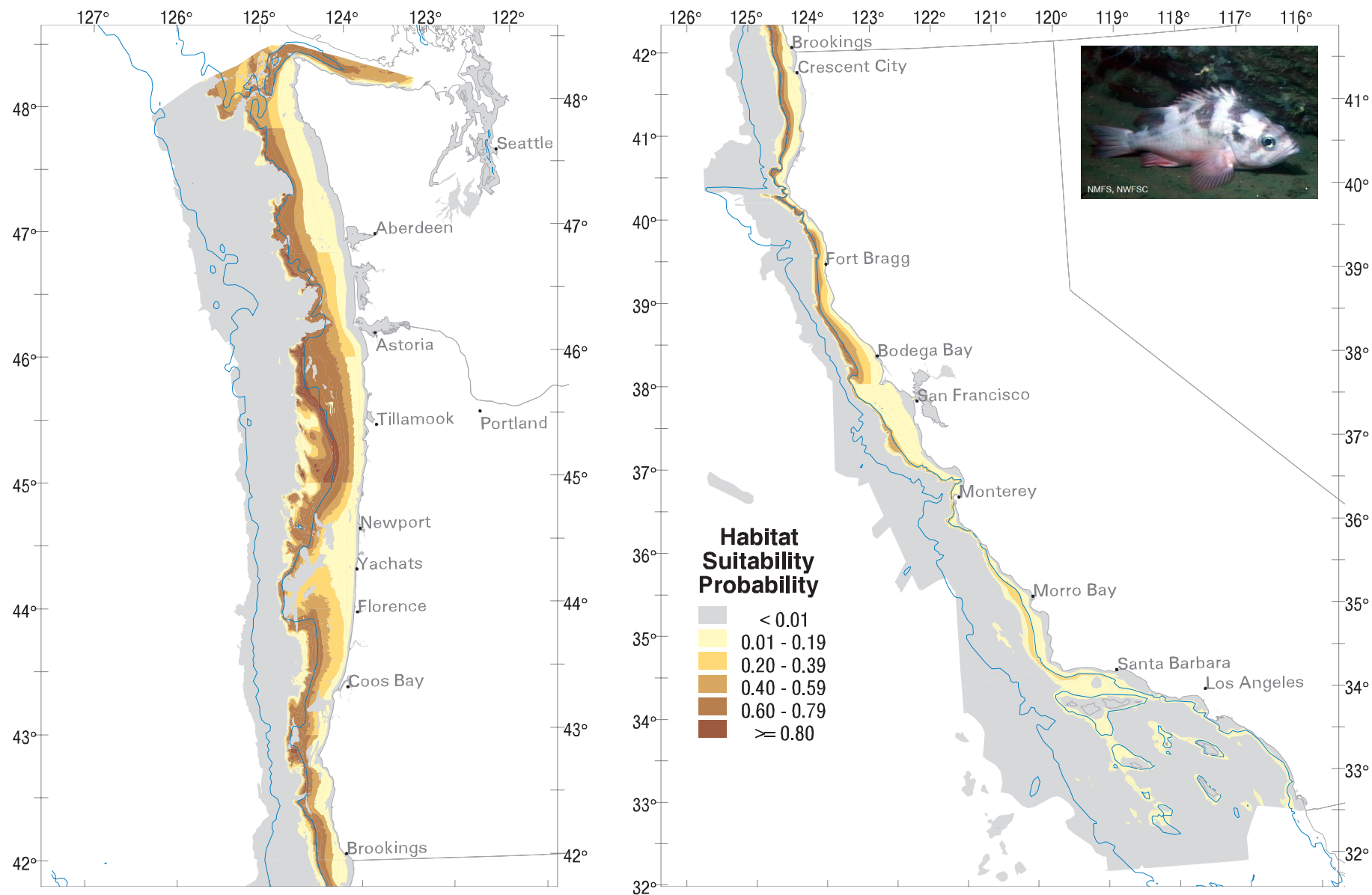|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Curlfin Sole - Adult

Habitat Suitability Probability

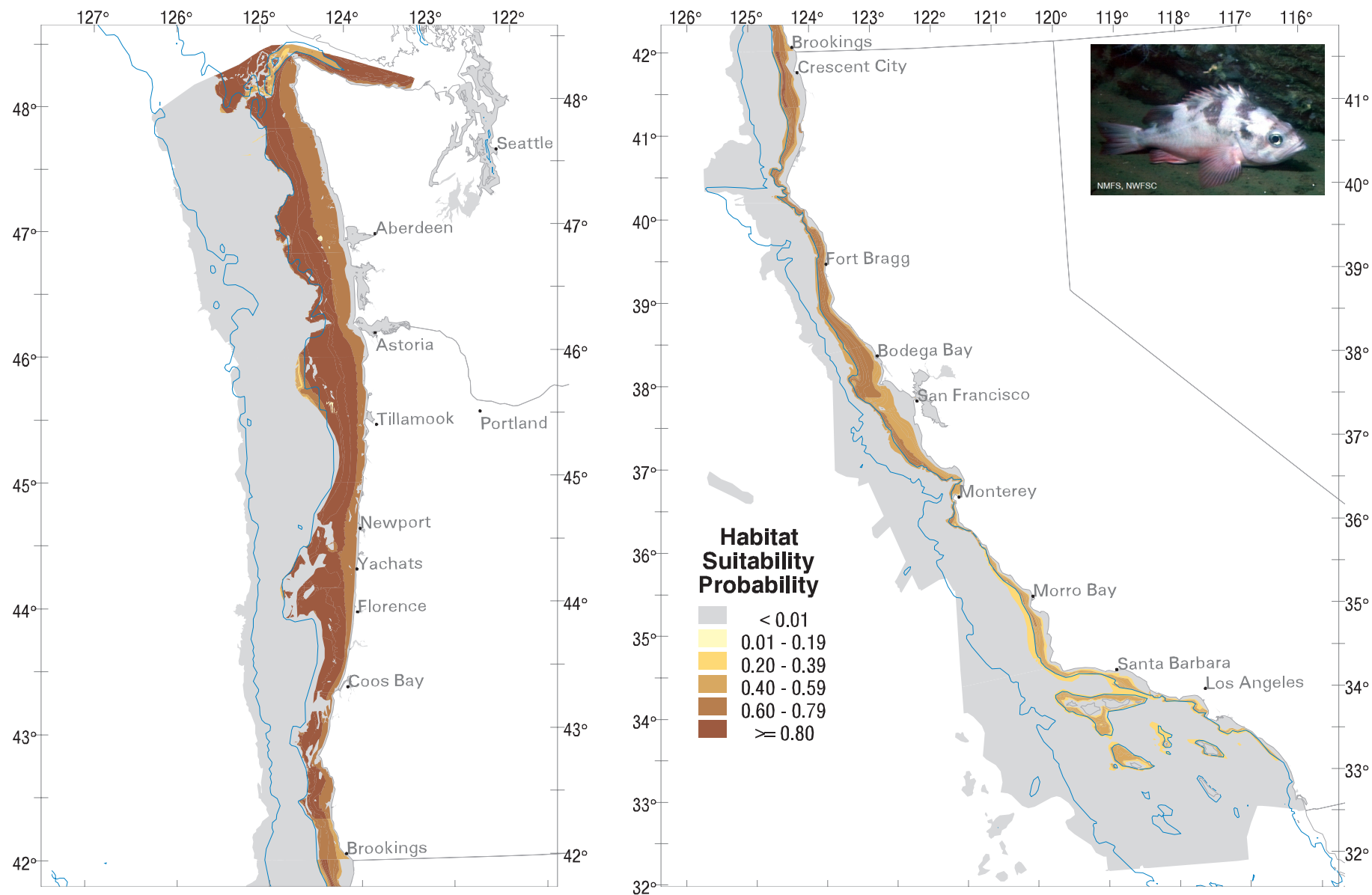|	
⬜	< 0.01
🟨	0.01 - 0.19
🟧	0.20 - 0.39
🟫	0.40 - 0.59
🟫	0.60 - 0.79
🟫	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey

Pacific Coast Groundfish EFH FEIS

December 2005

Darkblotched Rockfish - Adult

Habitat Suitability Probability

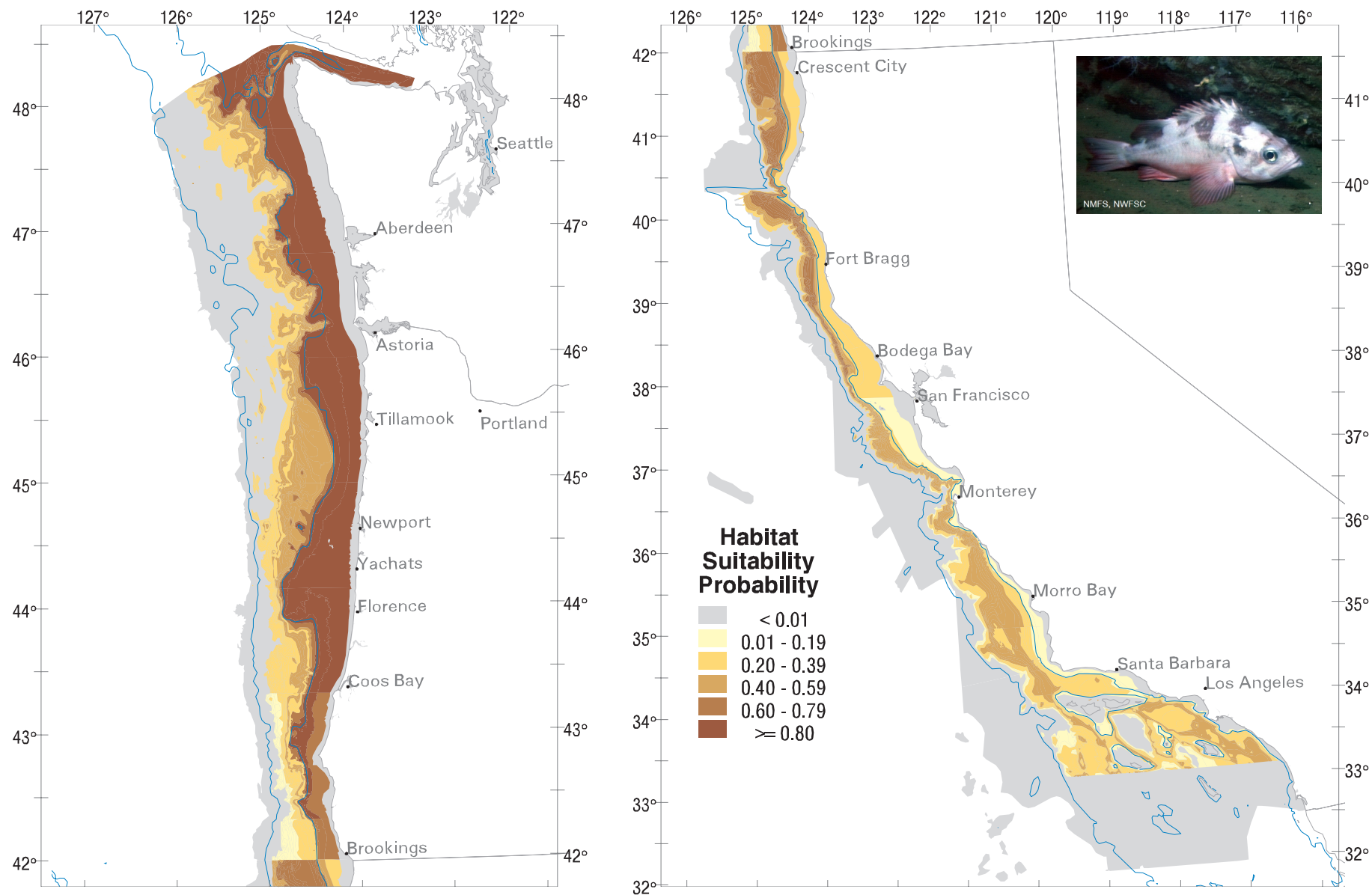|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

NMFS, NWFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey

Pacific Coast Groundfish EFH FEIS

December 2005

Darkblotched Rockfish - Juvenile

Habitat Suitability Probability

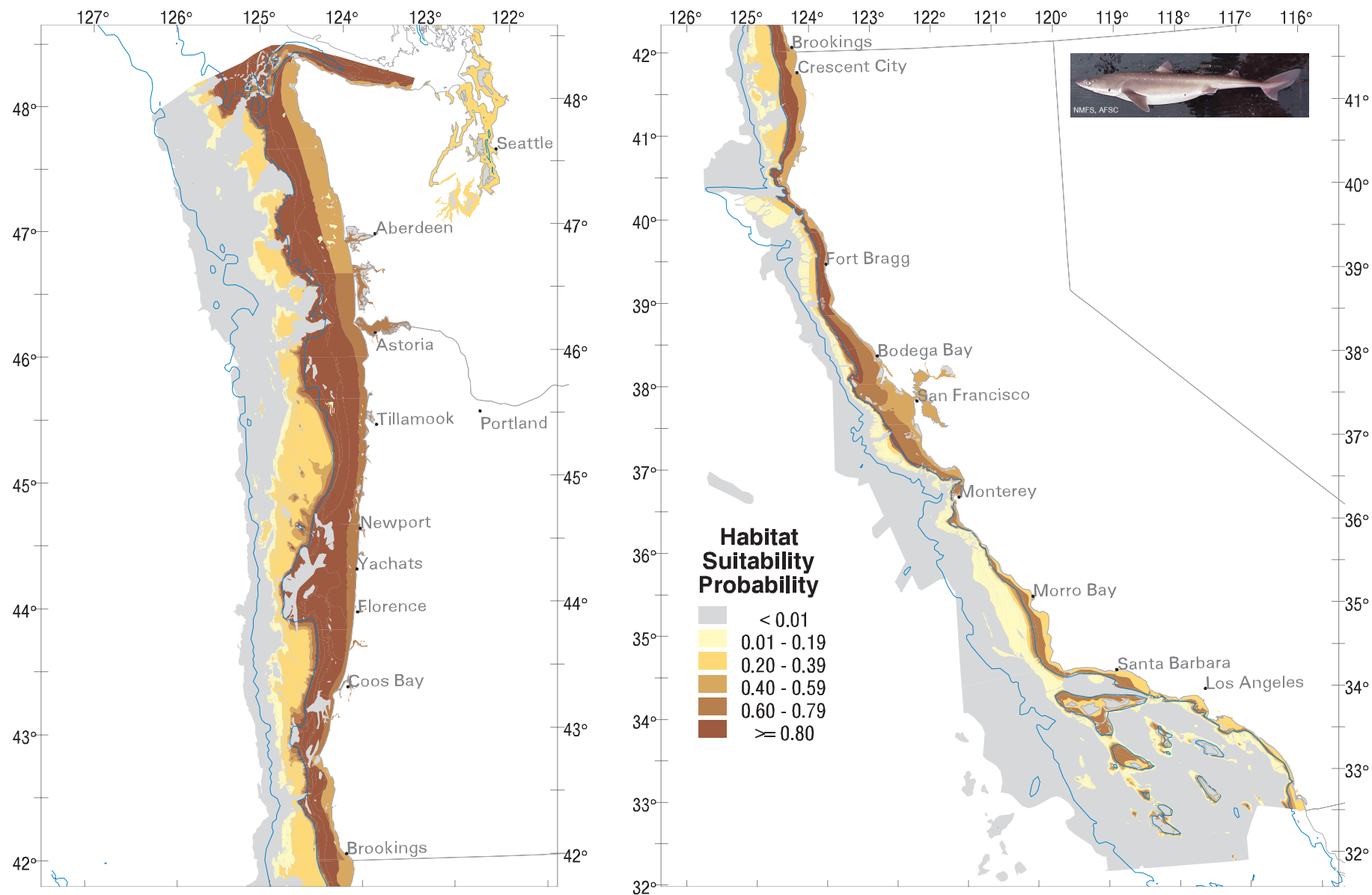|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

NMFS, NWFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: 'HUD & Survey'

Pacific Coast Groundfish EFH FEIS

December 2005

Darkblotched Rockfish - Larvae

Habitat Suitability Probability

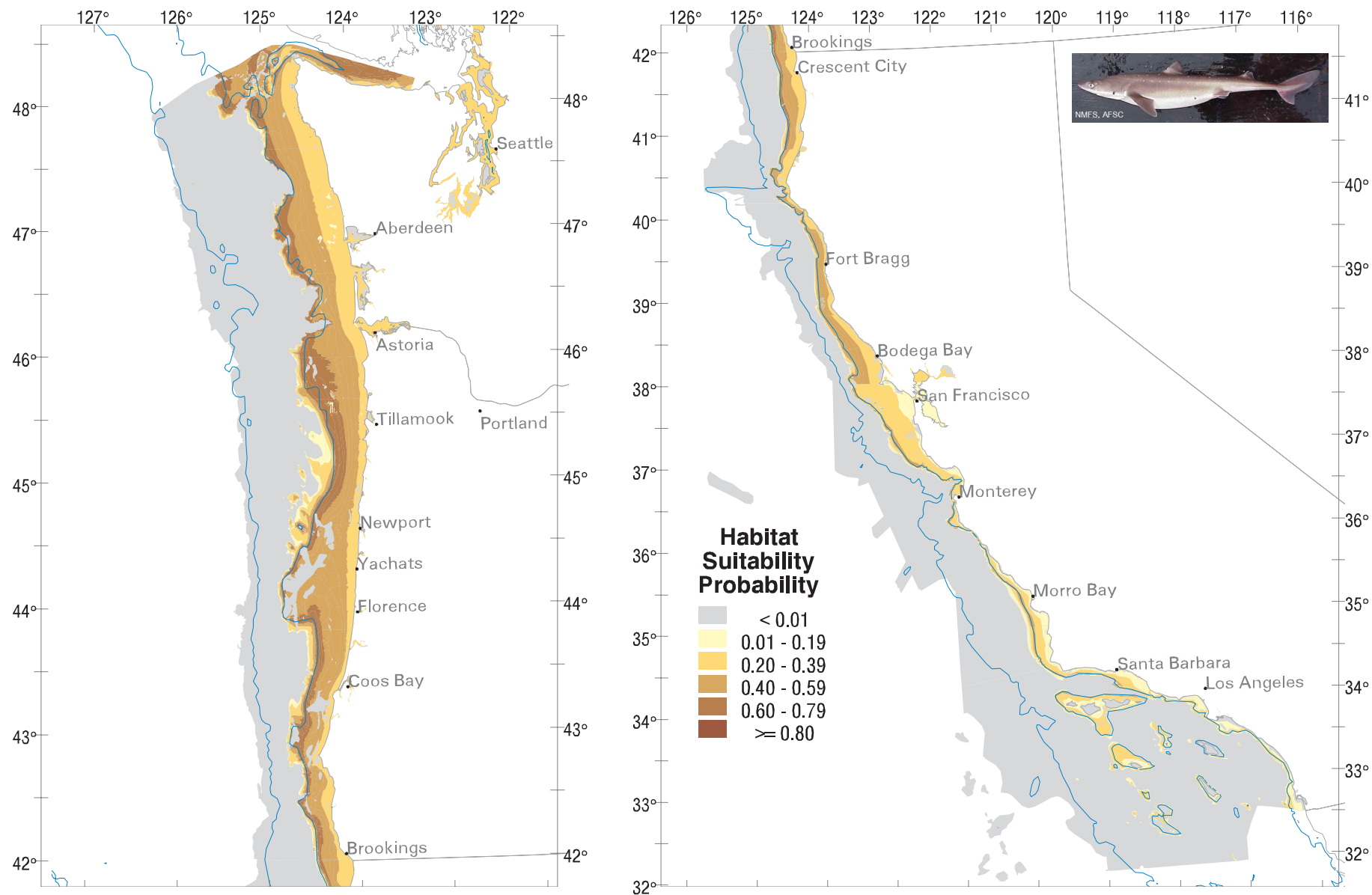|	
▨	< 0.01
▨	0.01 - 0.19
▨	0.20 - 0.39
▨	0.40 - 0.59
▨	0.60 - 0.79
▨	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Spiny Dogfish - Adult

Habitat Suitability Probability

|	
(gray)	< 0.01
(pale yellow)	0.01 - 0.19
(yellow)	0.20 - 0.39
(light brown)	0.40 - 0.59
(brown)	0.60 - 0.79
(dark brown)	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date : November 01 , 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from : HUD

Spiny Dogfish - Juvenile

NMFS, AFSC

**Habitat
Suitability
Probability**

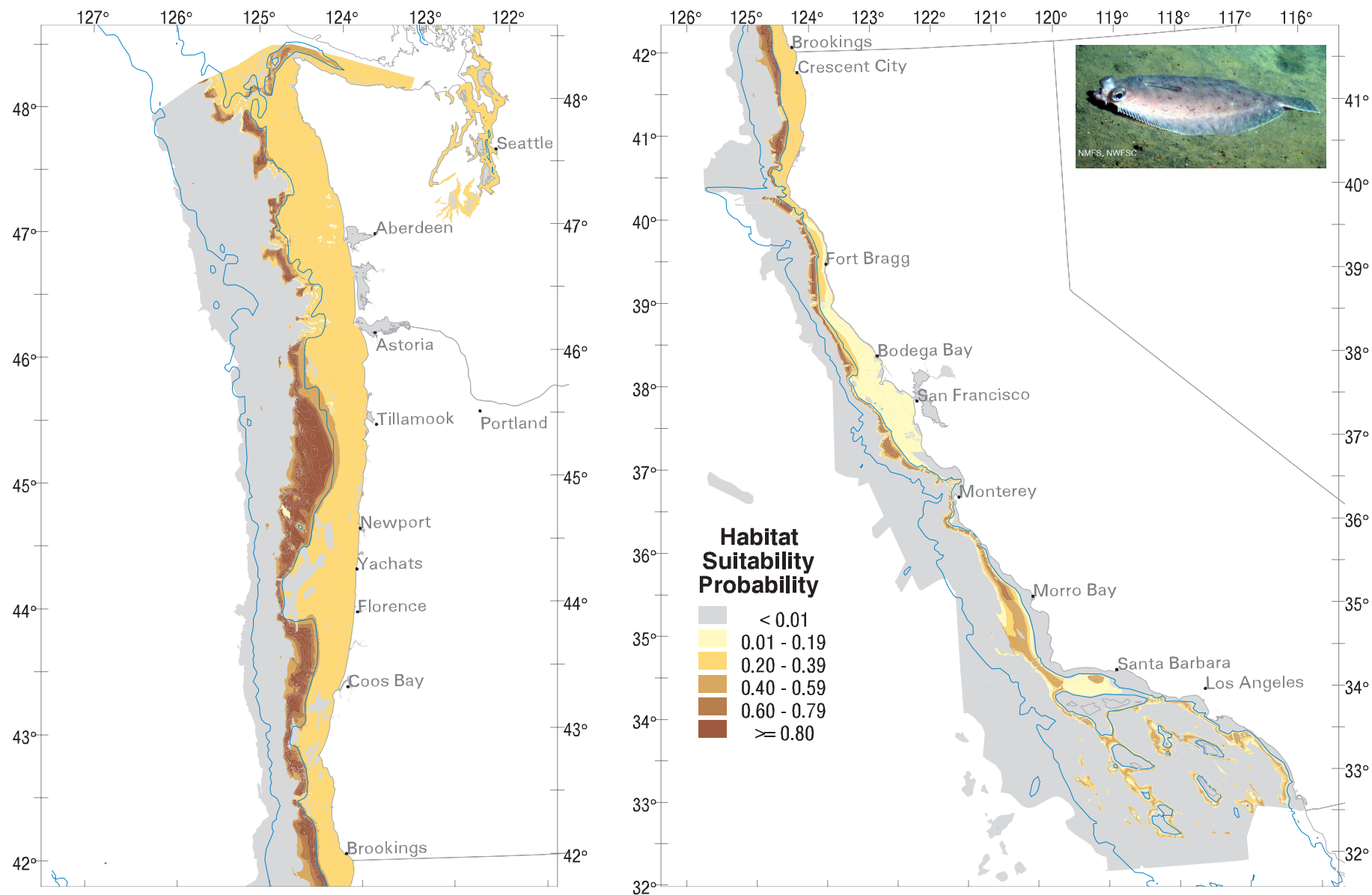|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Dover Sole - Adult
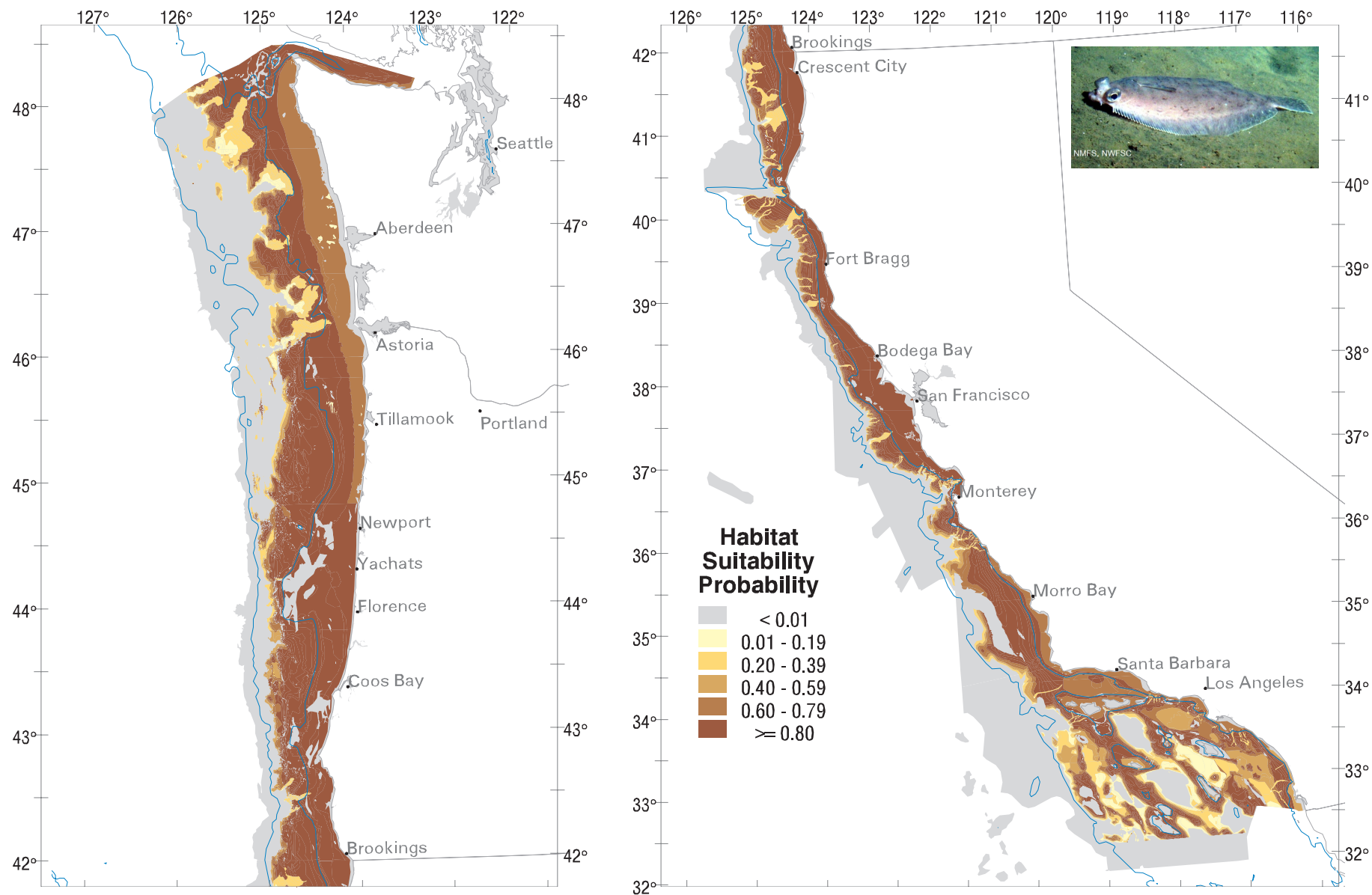
Habitat Suitability Probability

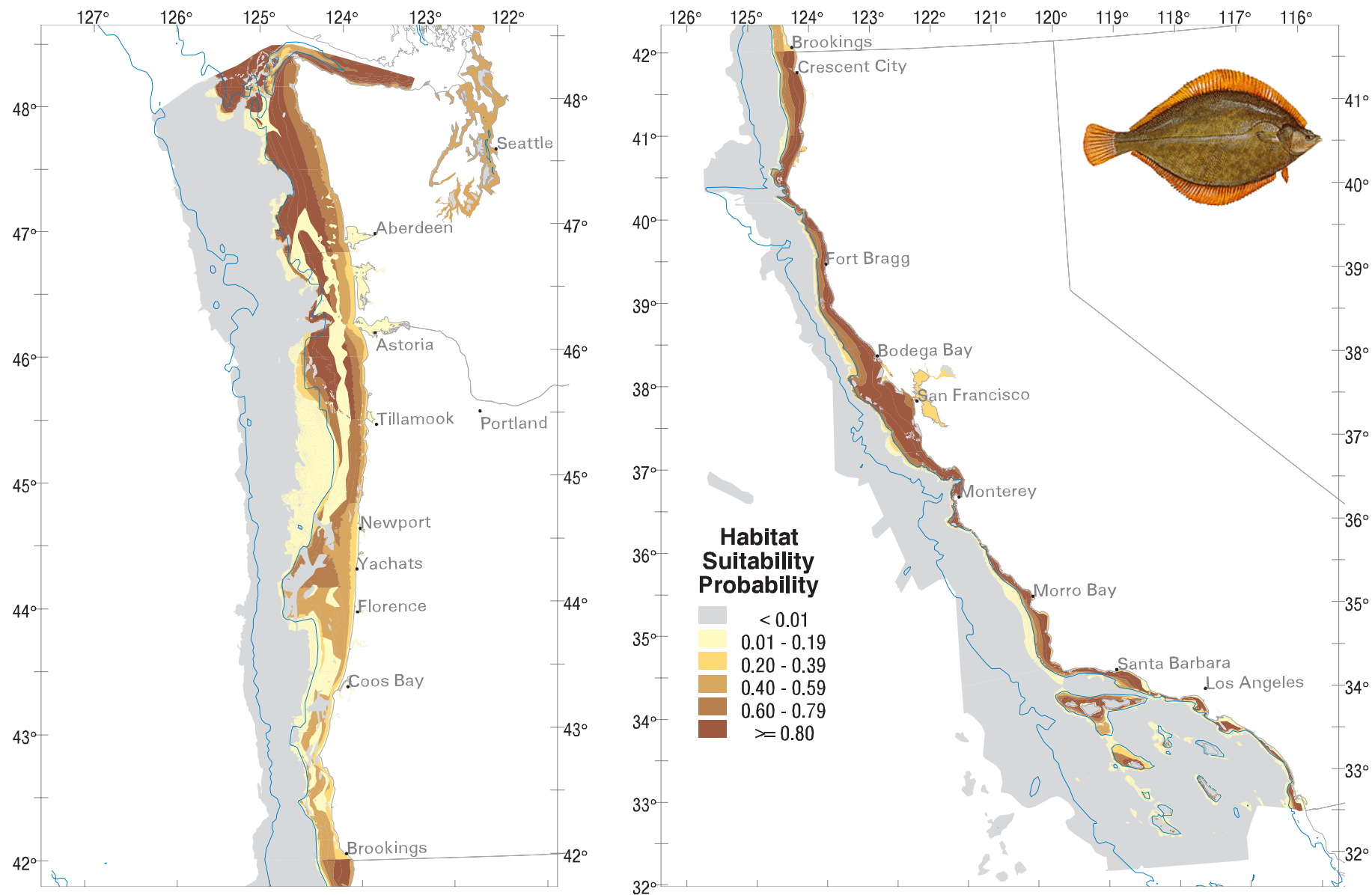|	
⬜	< 0.01
🟨	0.01 - 0.19
🟧	0.20 - 0.39
🟫	0.40 - 0.59
🟫	0.60 - 0.79
🟫	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey

Pacific Coast Groundfish EFH FEIS   December 2005

Dover Sole - Juvenile

Habitat Suitability Probability

▢ (grey)	< 0.01
▢ (pale yellow)	0.01 - 0.19
▢ (yellow)	0.20 - 0.39
▢ (light brown)	0.40 - 0.59
▢ (brown)	0.60 - 0.79
▢ (dark brown)	>= 0.80

Left map place names (north to south): Seattle, Aberdeen, Astoria, Portland, Tillamook, Newport, Yachats, Florence, Coos Bay, Brookings

Right map place names (north to south): Brookings, Crescent City, Fort Bragg, Bodega Bay, San Francisco, Monterey, Morro Bay, Santa Barbara, Los Angeles
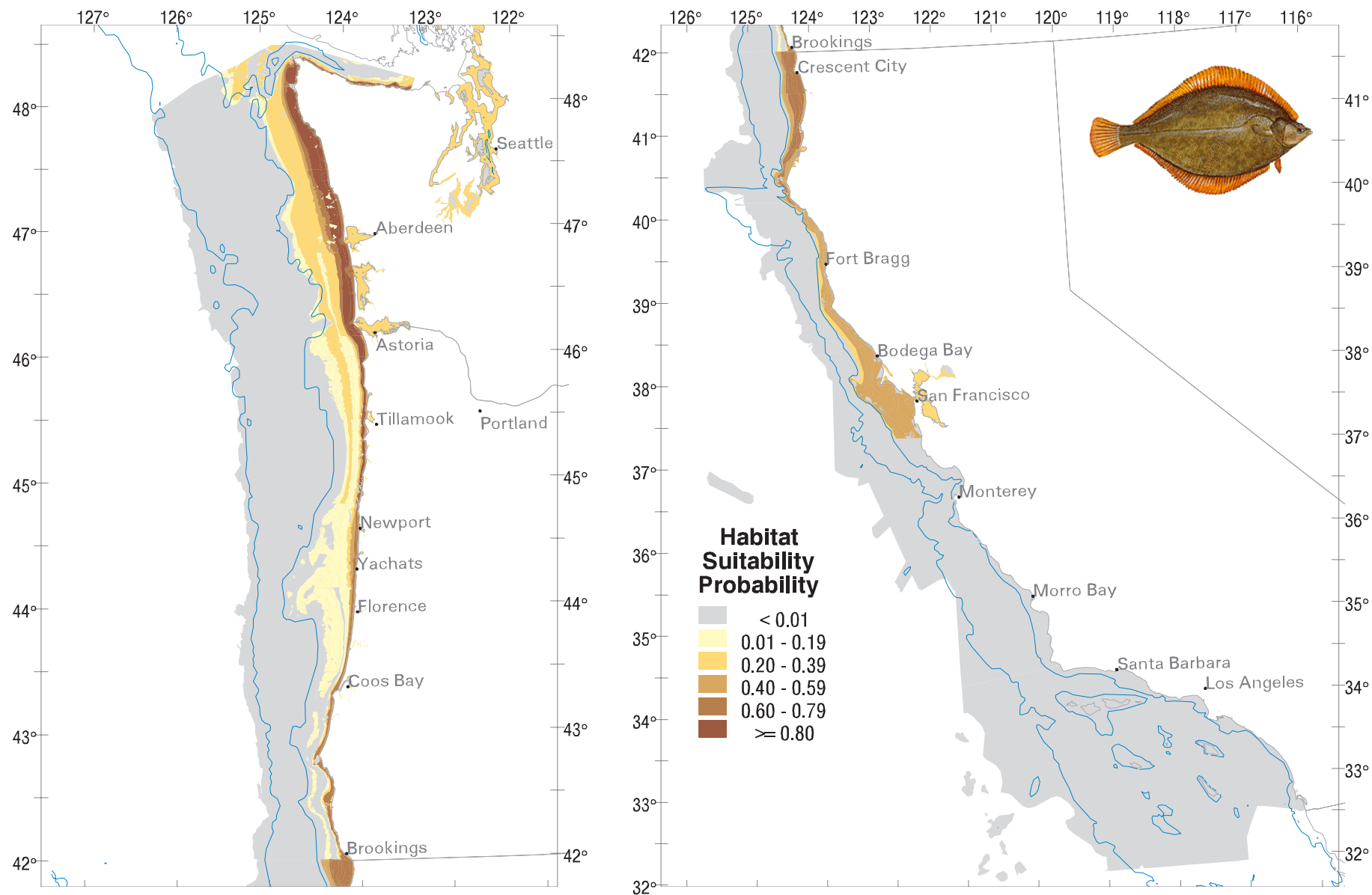
NMFS, NWFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

English Sole - Adult

Habitat Suitability Probability

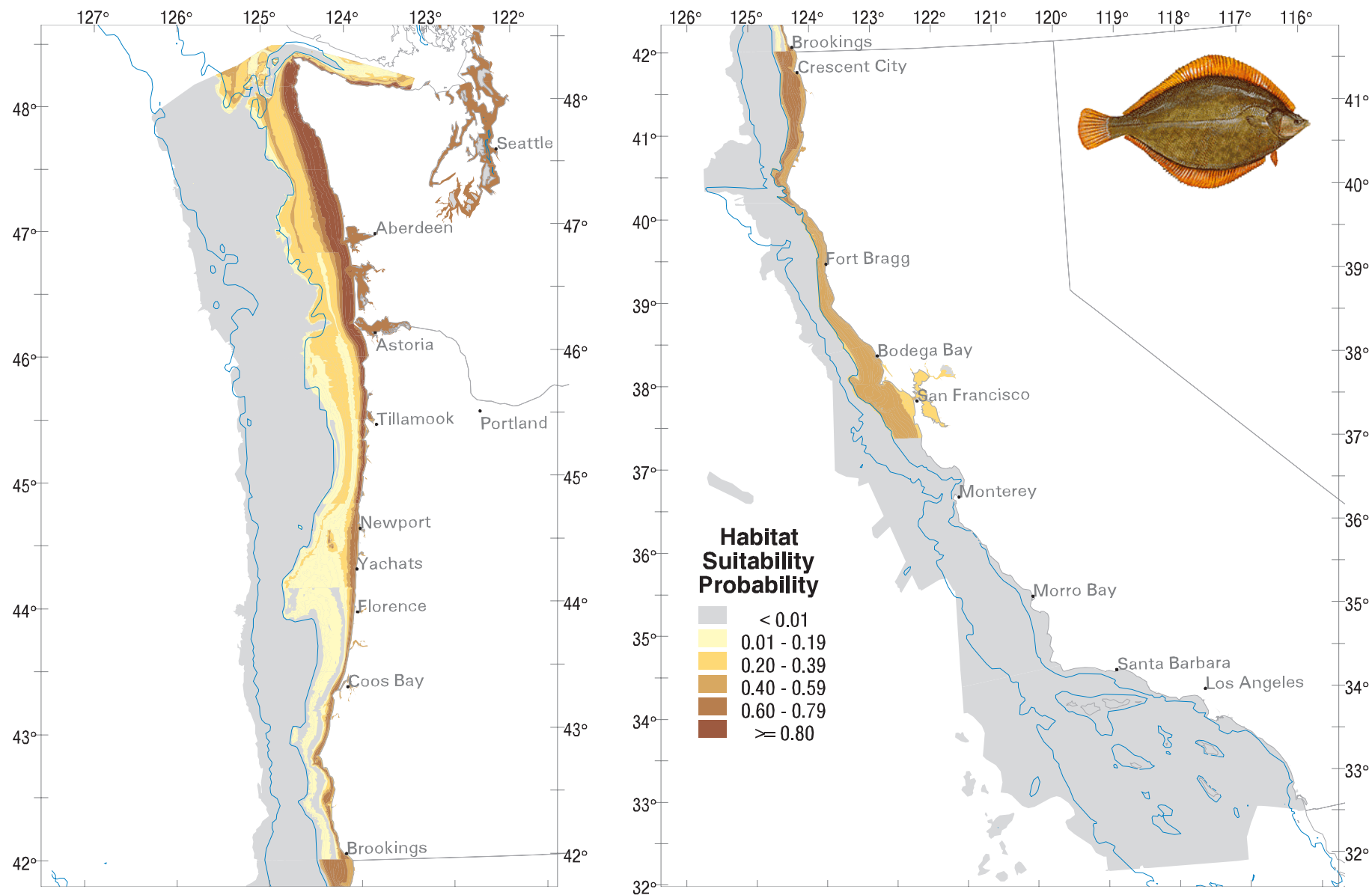|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

English Sole - Juvenile

Habitat Suitability Probability

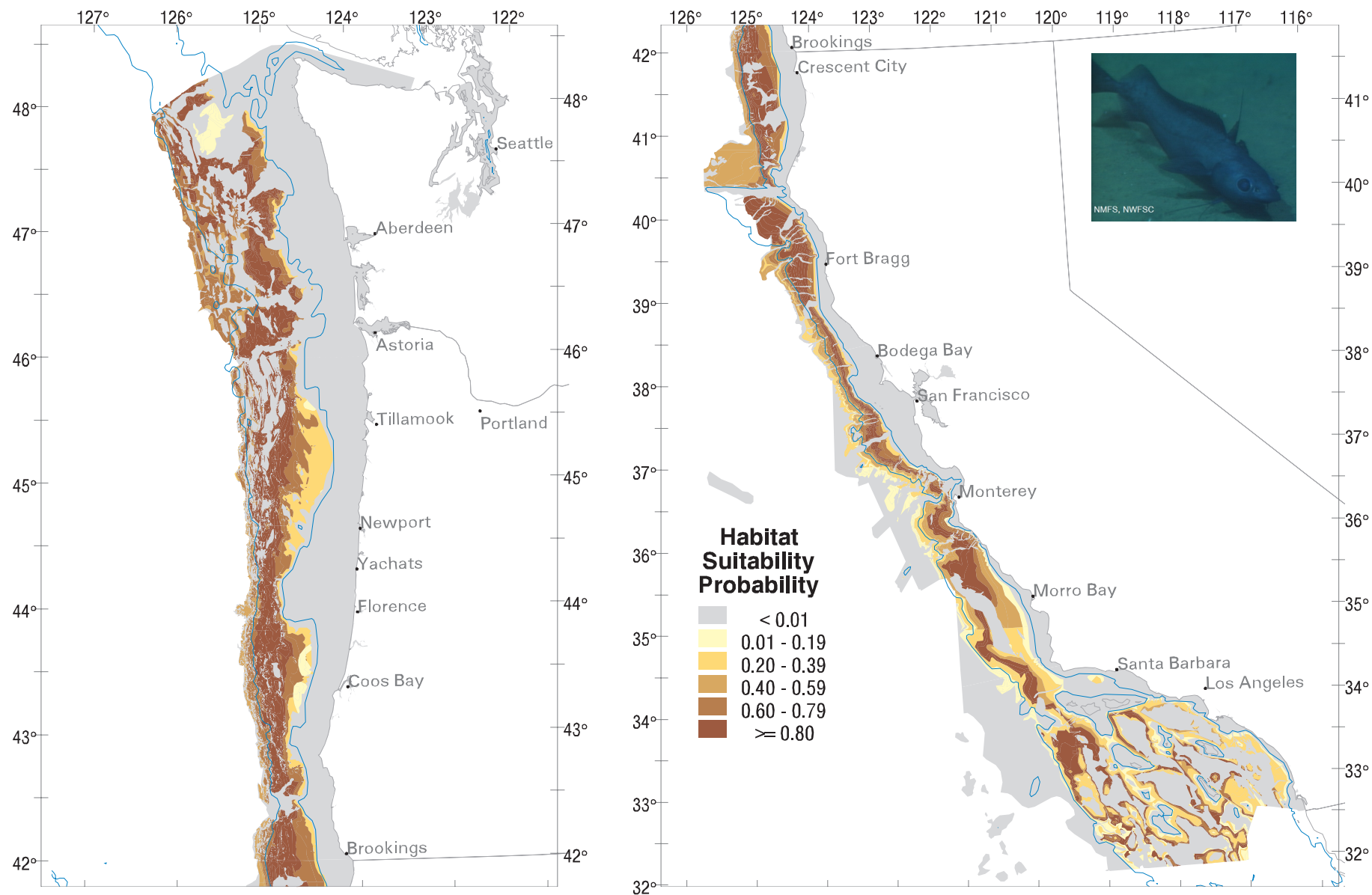|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

English Sole - Larvae

Habitat Suitability Probability

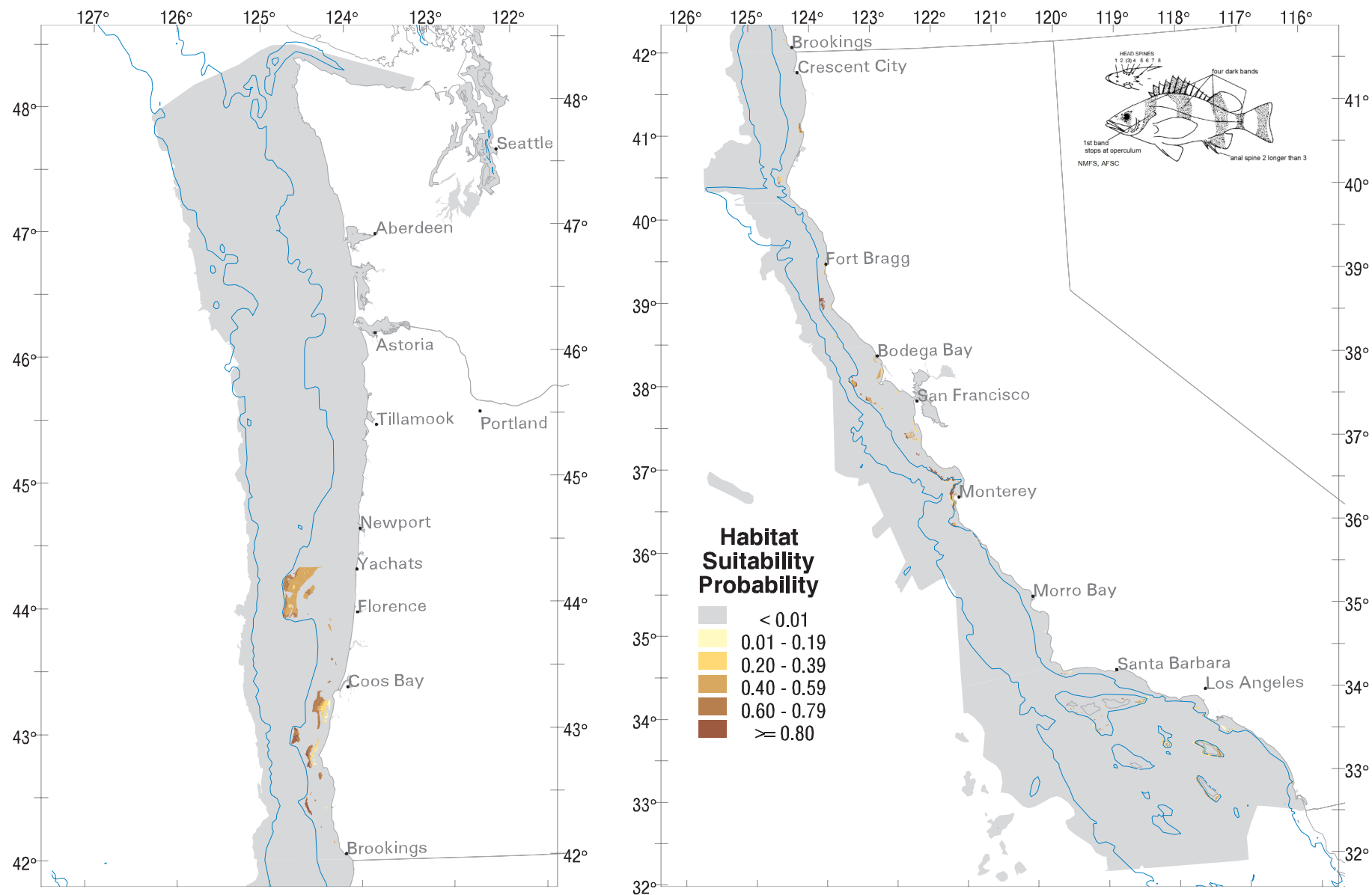|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Finescale Codling - Adult

Habitat Suitability Probability

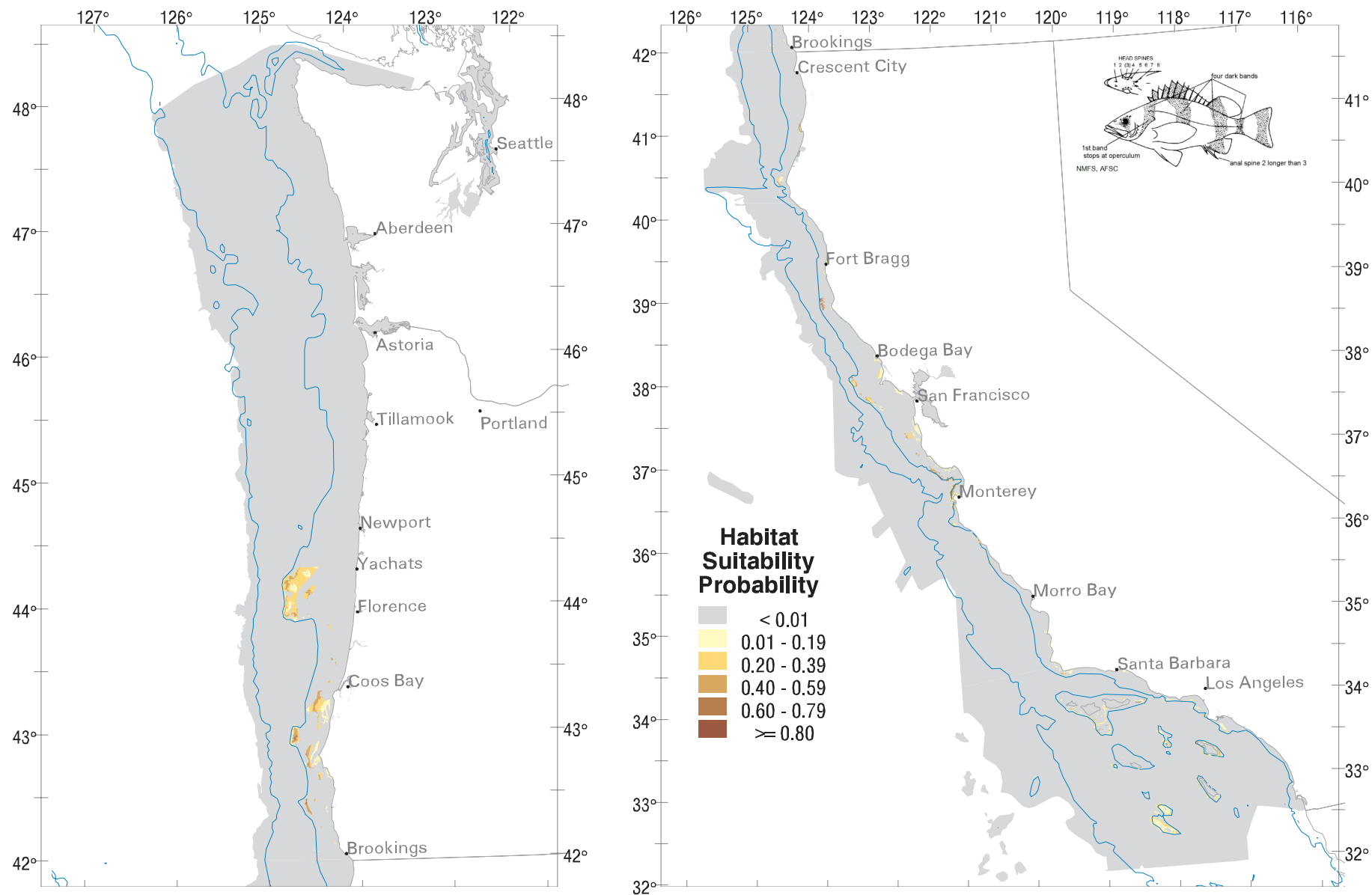|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: 'HUD & Survey'

Pacific Coast Groundfish EFH FEIS

December 2005

Flag Rockfish - Adult

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

HEAD SPINES
1 2 (3) 4 5 6 7 8
four dark bands
1st band
stops at operculum
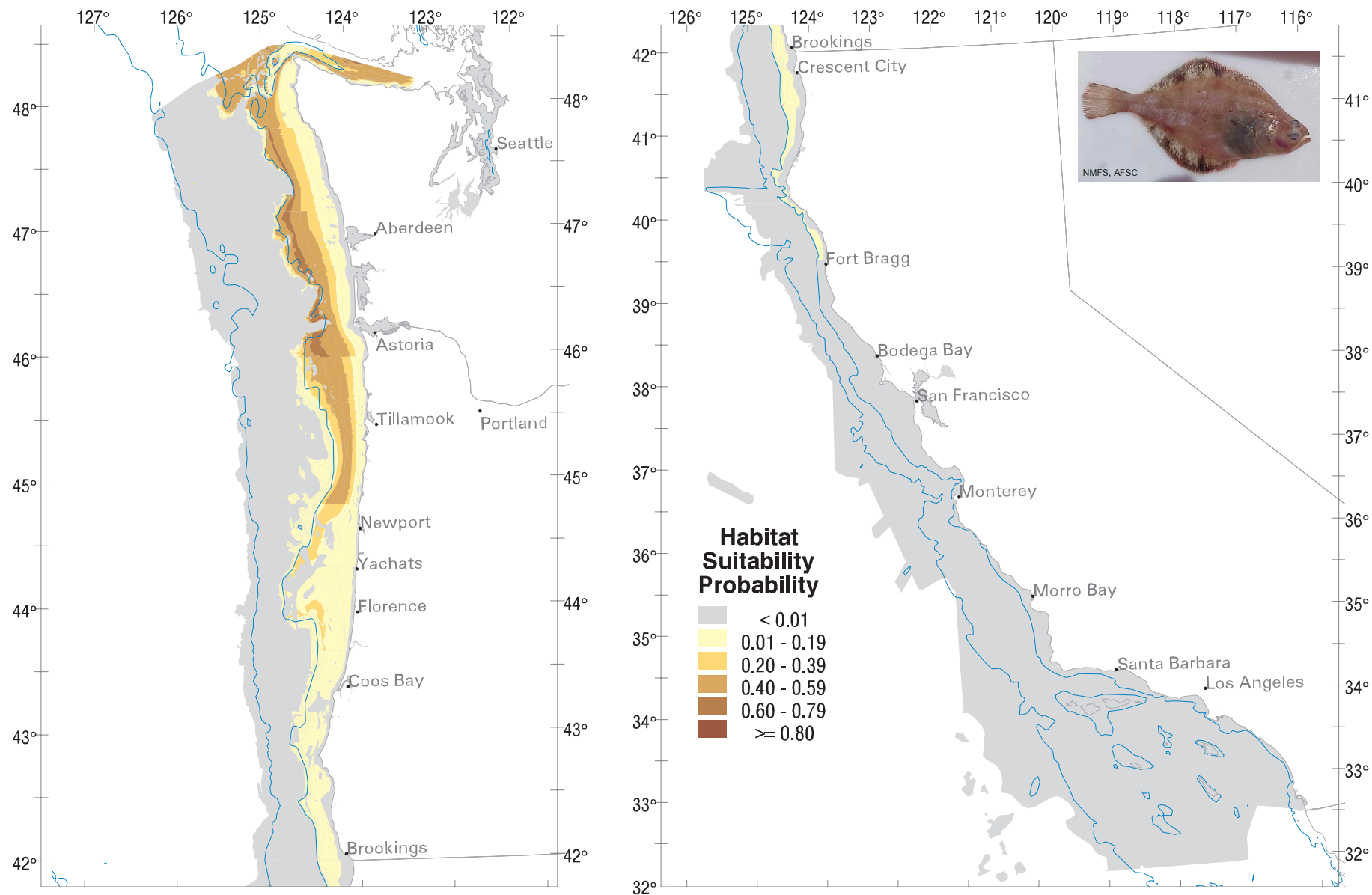anal spine 2 longer than 3
NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Flag Rockfish - Juvenile

Habitat Suitability Probability

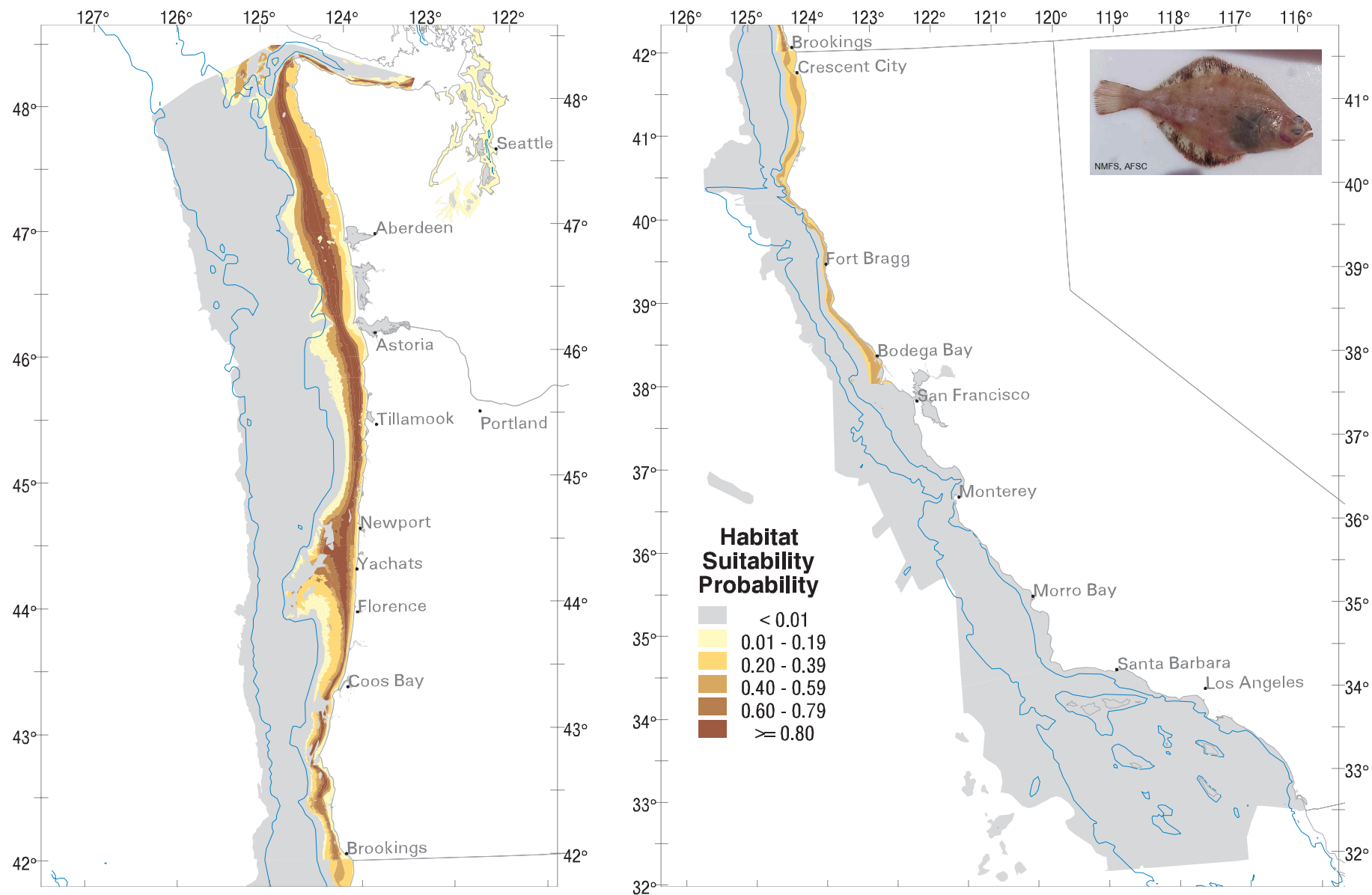|	
▢	< 0.01
▢	0.01 - 0.19
▢	0.20 - 0.39
▢	0.40 - 0.59
▢	0.60 - 0.79
▢	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS   December 2005

Flathead Sole - Adult

NMFS, AFSC

Habitat Suitability Probability

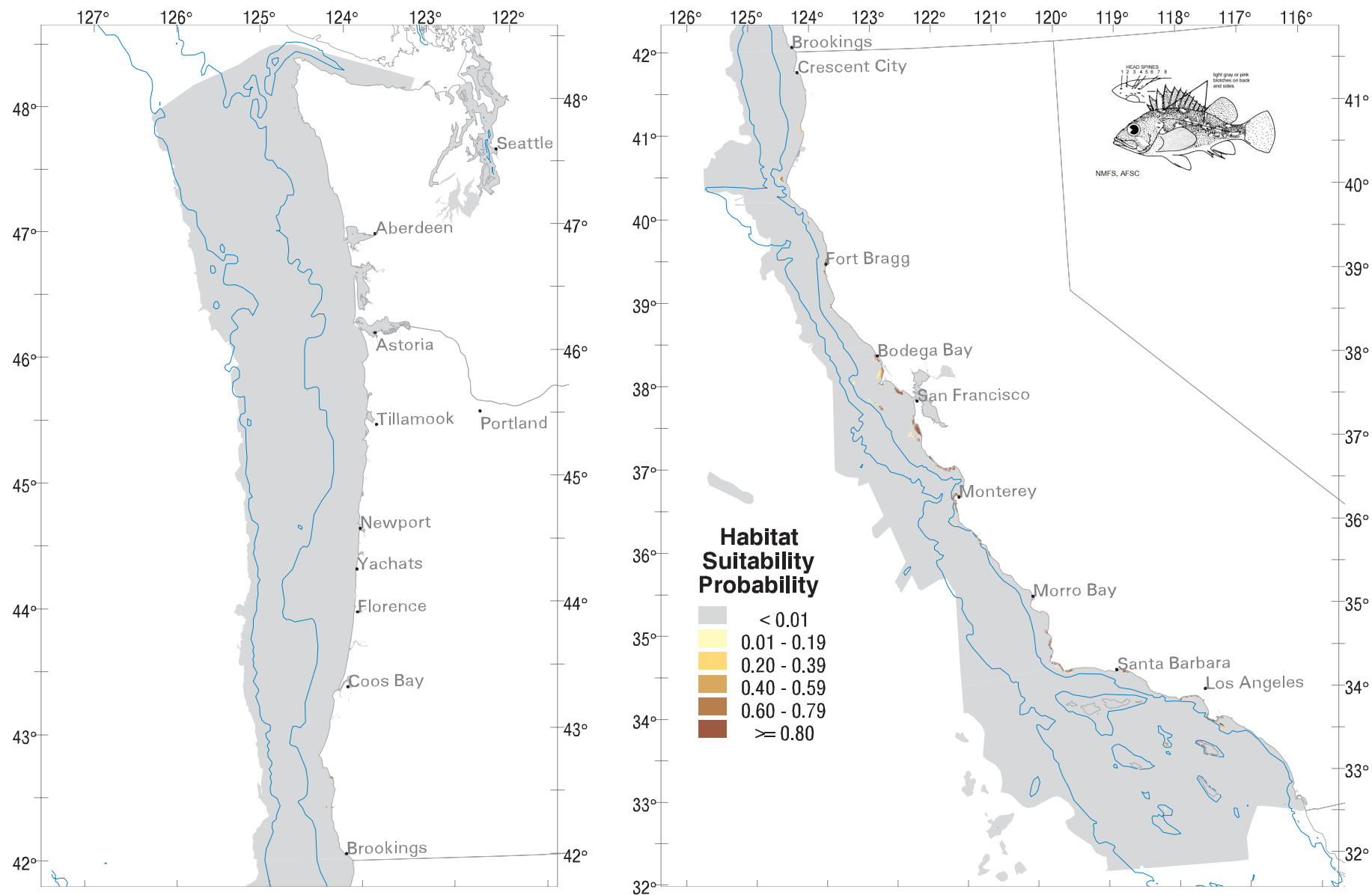|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey+

Pacific Coast Groundfish EFH FEIS

December 2005

Flathead Sole - Juvenile

Habitat Suitability Probability

⬜	< 0.01
🟨	0.01 - 0.19
🟧	0.20 - 0.39
🟫	0.40 - 0.59
🟫	0.60 - 0.79
🟫	>= 0.80

NMFS, AFSC
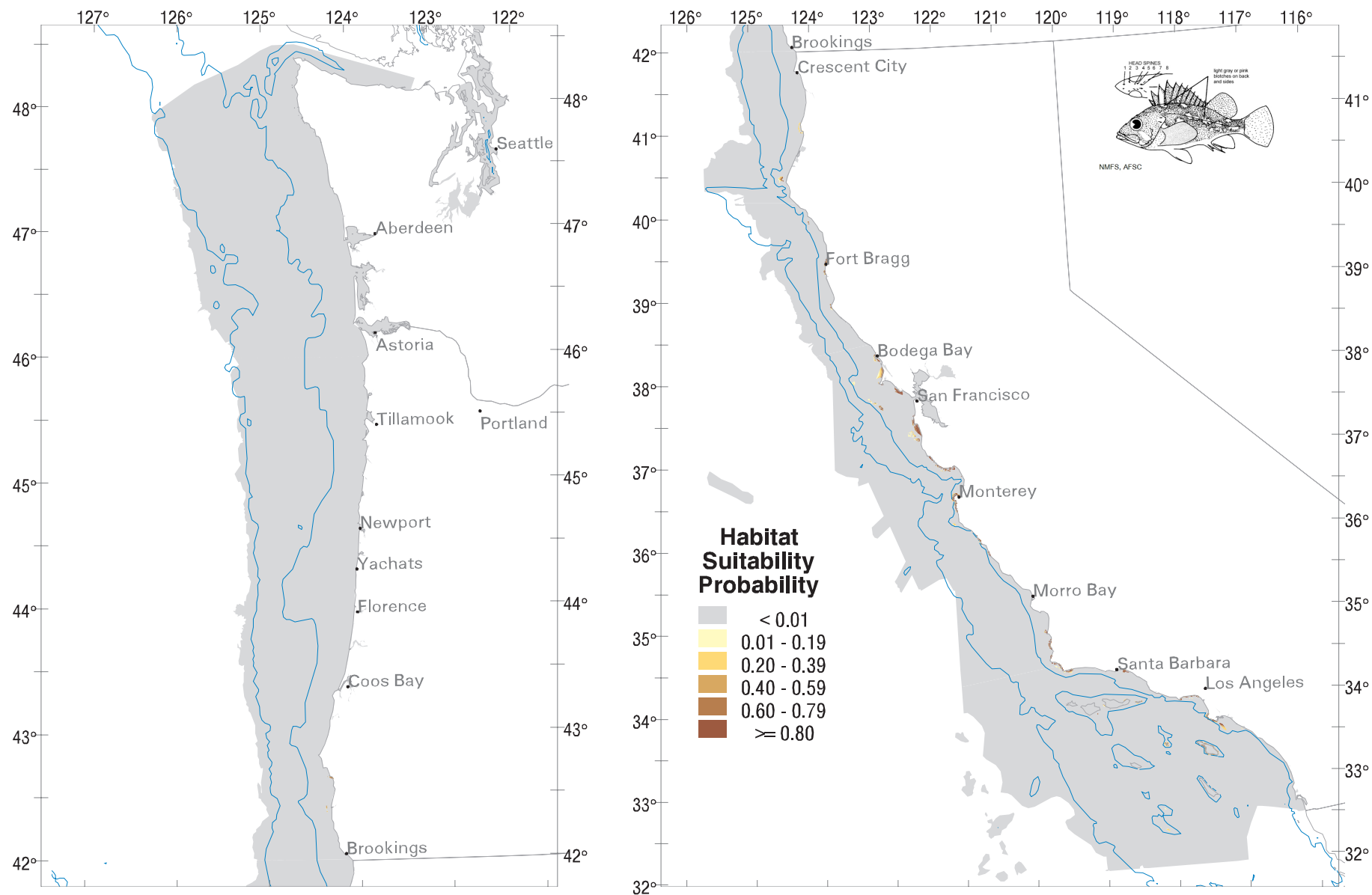
Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Gopher Rockfish - Adult

HEAD SPINES
1 2 3 4 5 6 7 8

light gray or pink
blotches on back
and sides

NMFS, AFSC

Habitat Suitability Probability

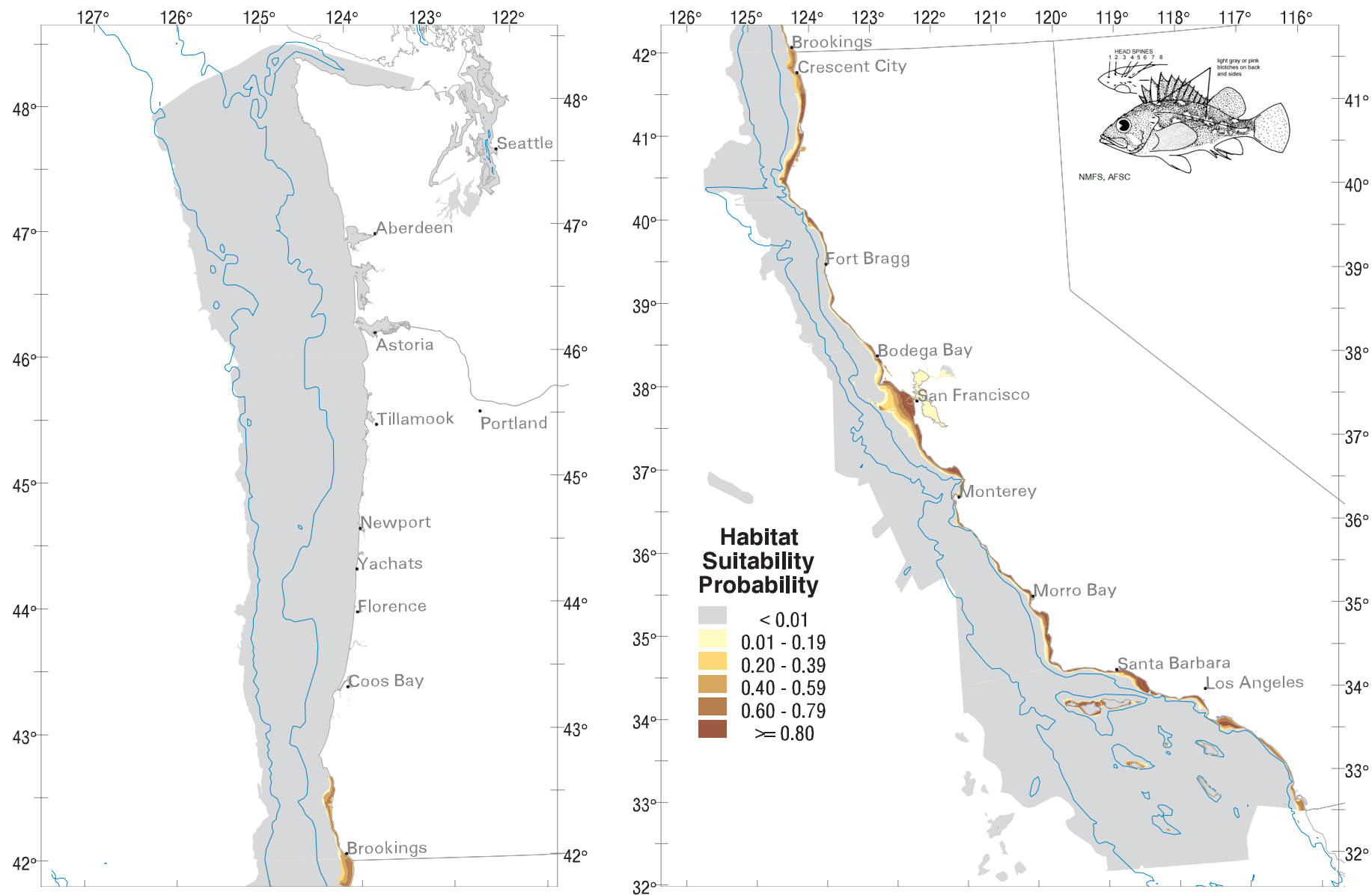|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Gopher Rockfish - Juvenile

Habitat Suitability Probability

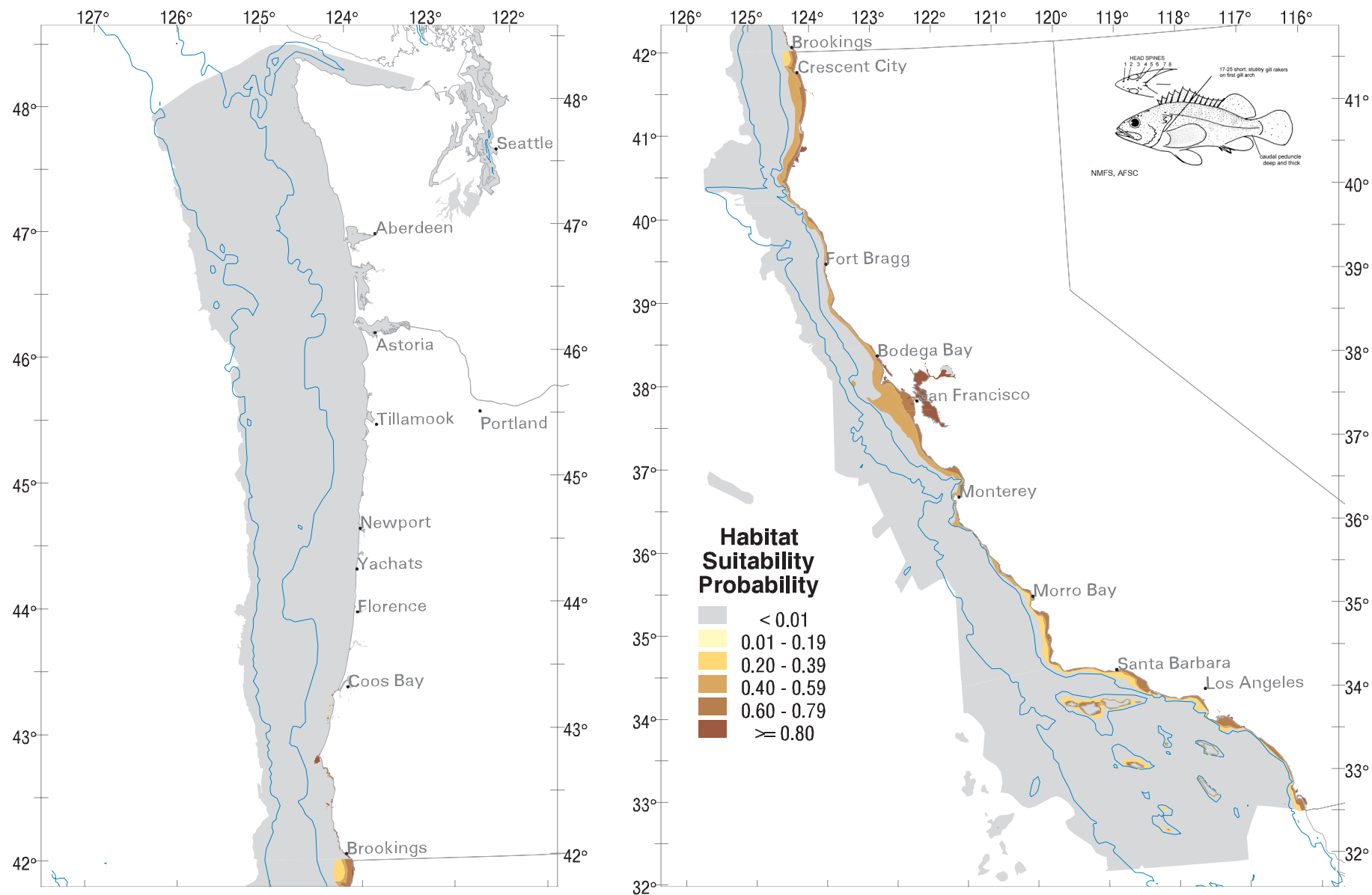|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Gopher Rockfish - Larvae

HEAD SPINES
1 2 3 4 5 6 7 8

light gray or pink
blotches on back
and sides

NMFS, AFSC

Brookings
Crescent City

Fort Bragg

Bodega Bay

San Francisco

Monterey

Morro Bay

Santa Barbara

Los Angeles

Seattle

Aberdeen

Astoria

Tillamook

Portland

Newport

Yachats

Florence

Coos Bay

Brookings

**Habitat
Suitability
Probability**

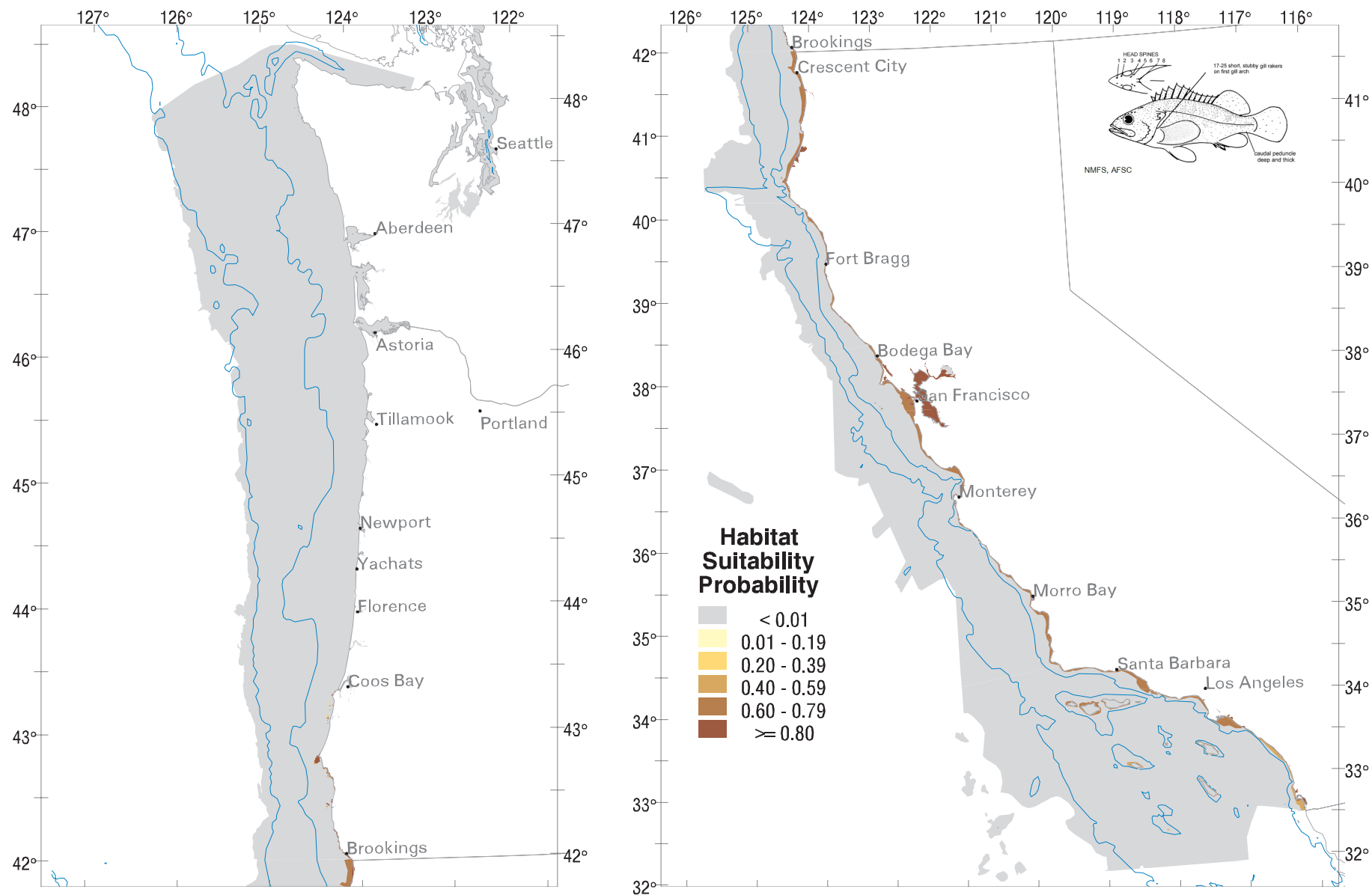|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Grass Rockfish - Adult

HEAD SPINES
1 2 3 4 5 6 7 8

17-25 short, stubby gill rakers
on first gill arch

caudal peduncle
deep and thick

NMFS, AFSC

Habitat Suitability Probability

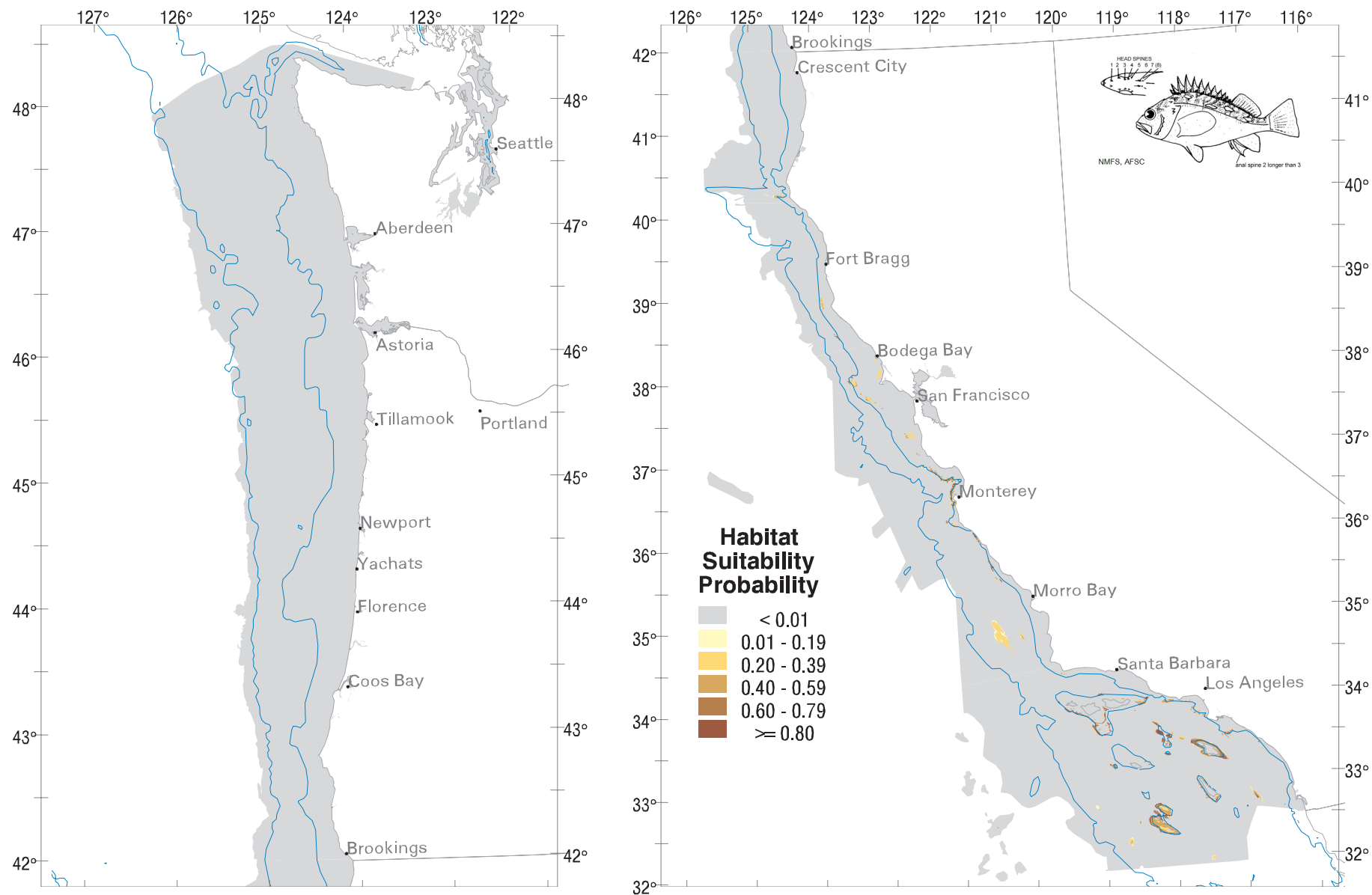|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Grass Rockfish - Juvenile

Habitat Suitability Probability

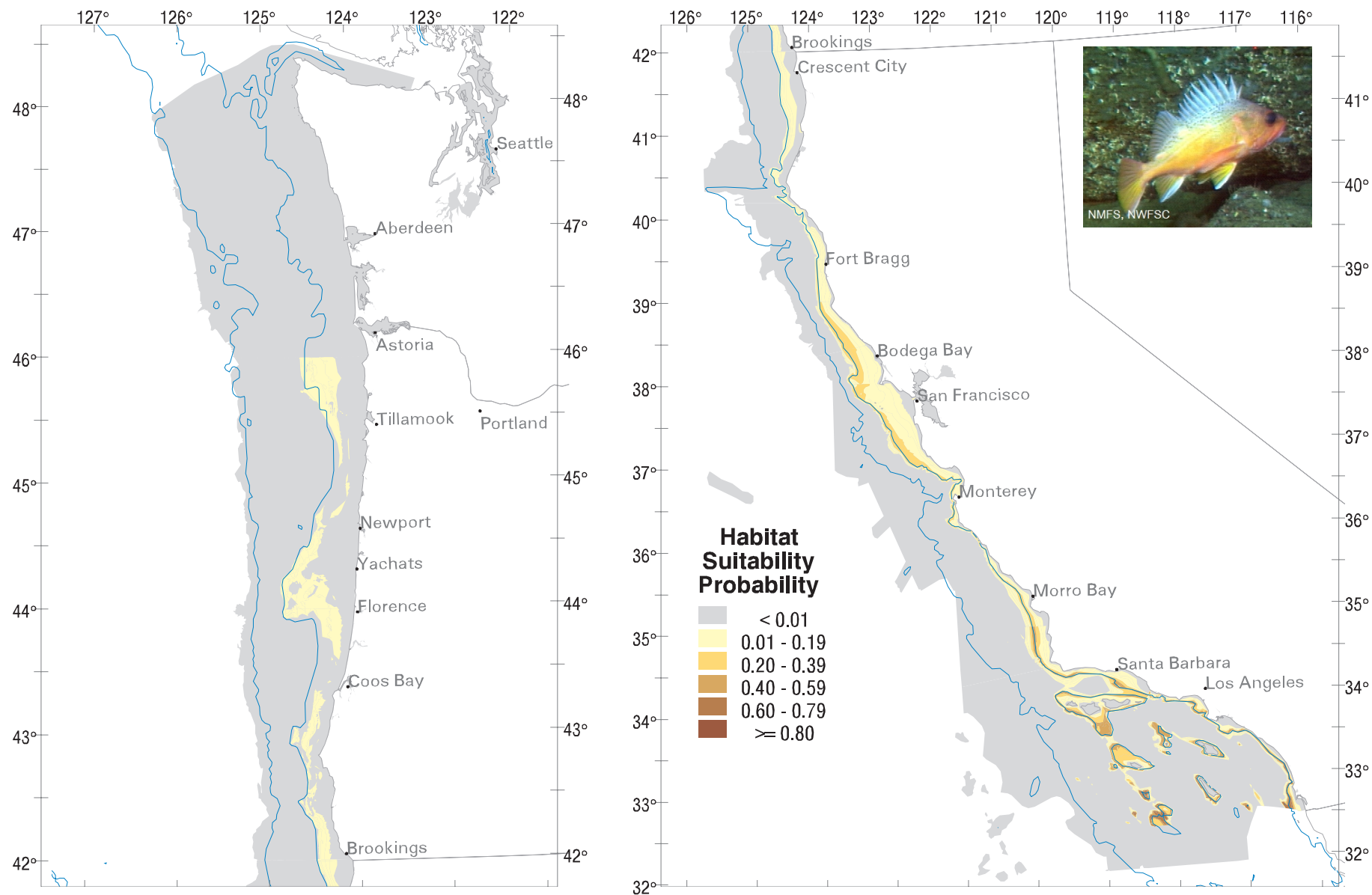|	
(gray)	< 0.01
(pale yellow)	0.01 - 0.19
(yellow)	0.20 - 0.39
(light orange)	0.40 - 0.59
(orange-brown)	0.60 - 0.79
(dark brown)	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Greenblotched Rockfish - Adult

Habitat Suitability Probability

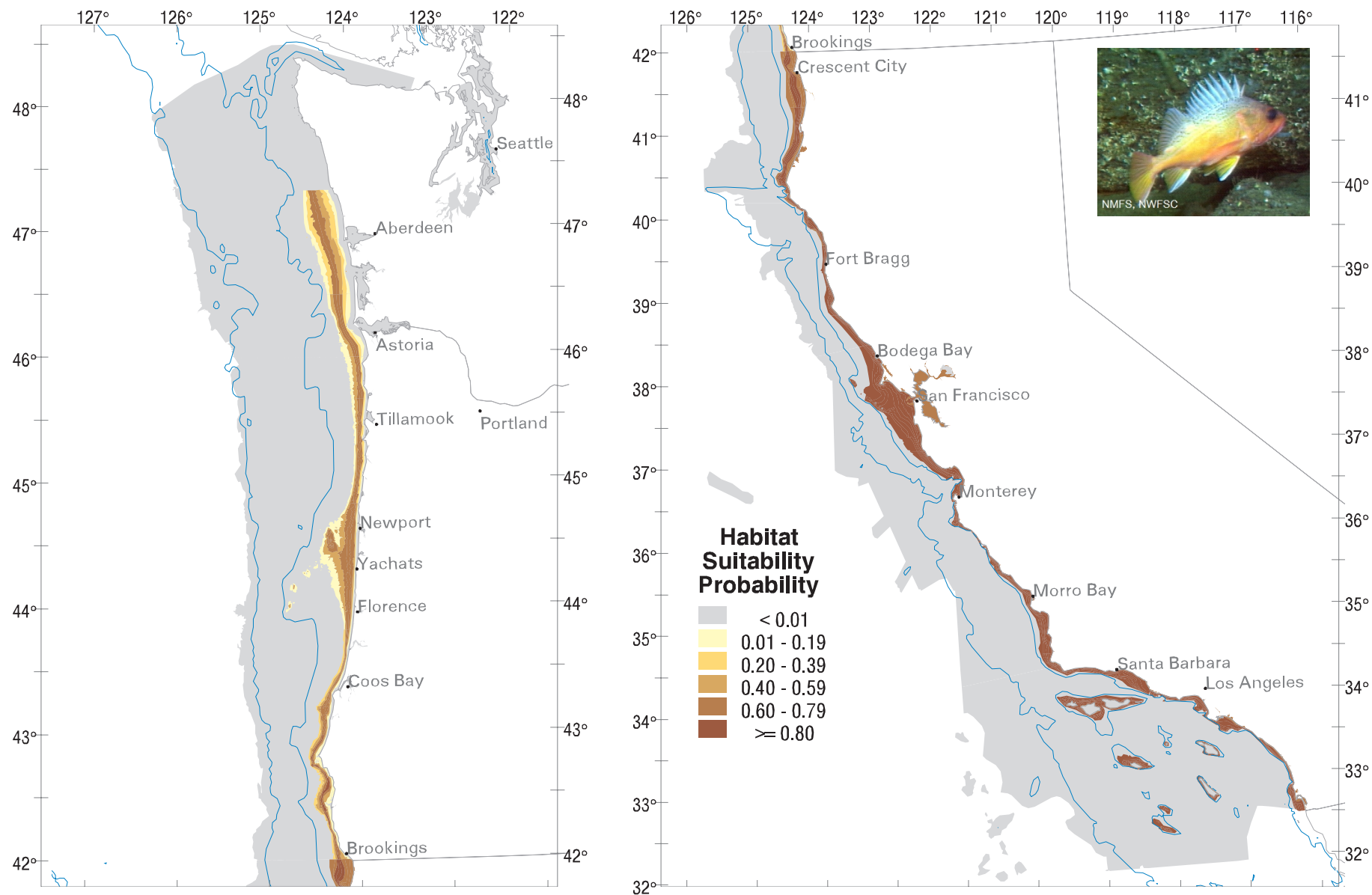|	
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	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Greenspotted Rockfish - Adult

Habitat Suitability Probability

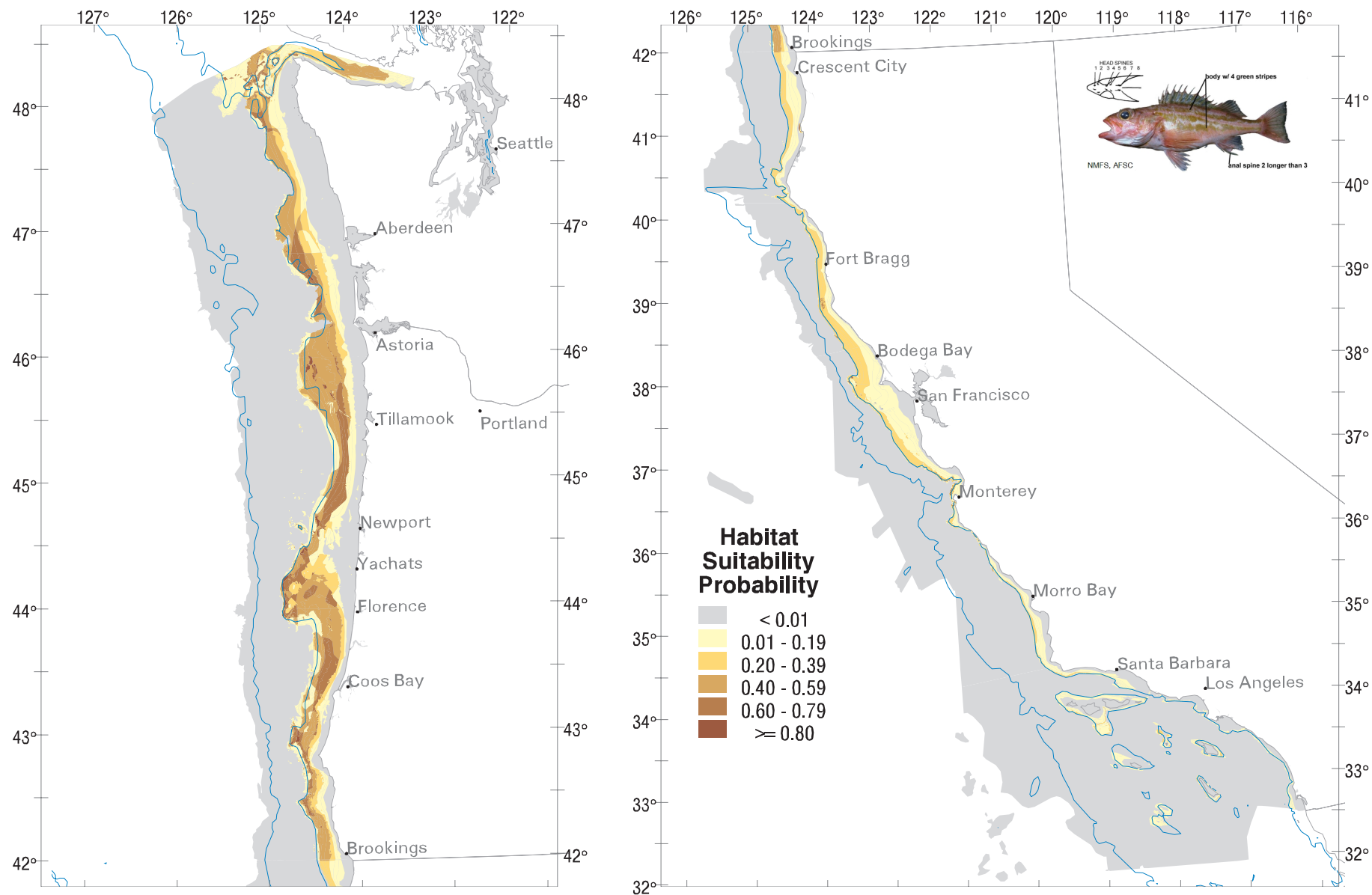|	
(gray)	< 0.01
(pale yellow)	0.01 - 0.19
(yellow)	0.20 - 0.39
(light brown)	0.40 - 0.59
(brown)	0.60 - 0.79
(dark brown)	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey

Greenspotted Rockfish - Juvenile

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

NMFS, NWFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD
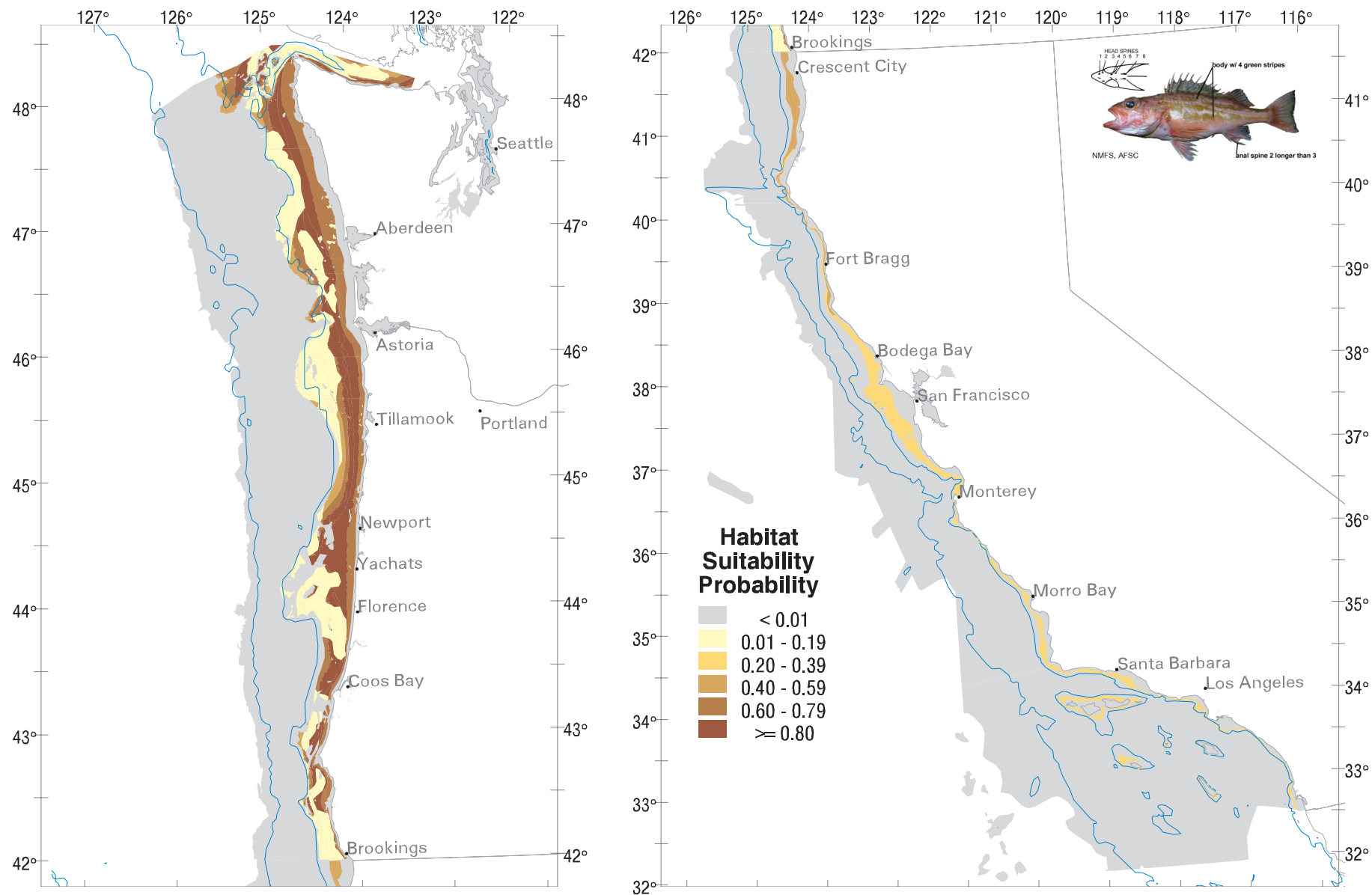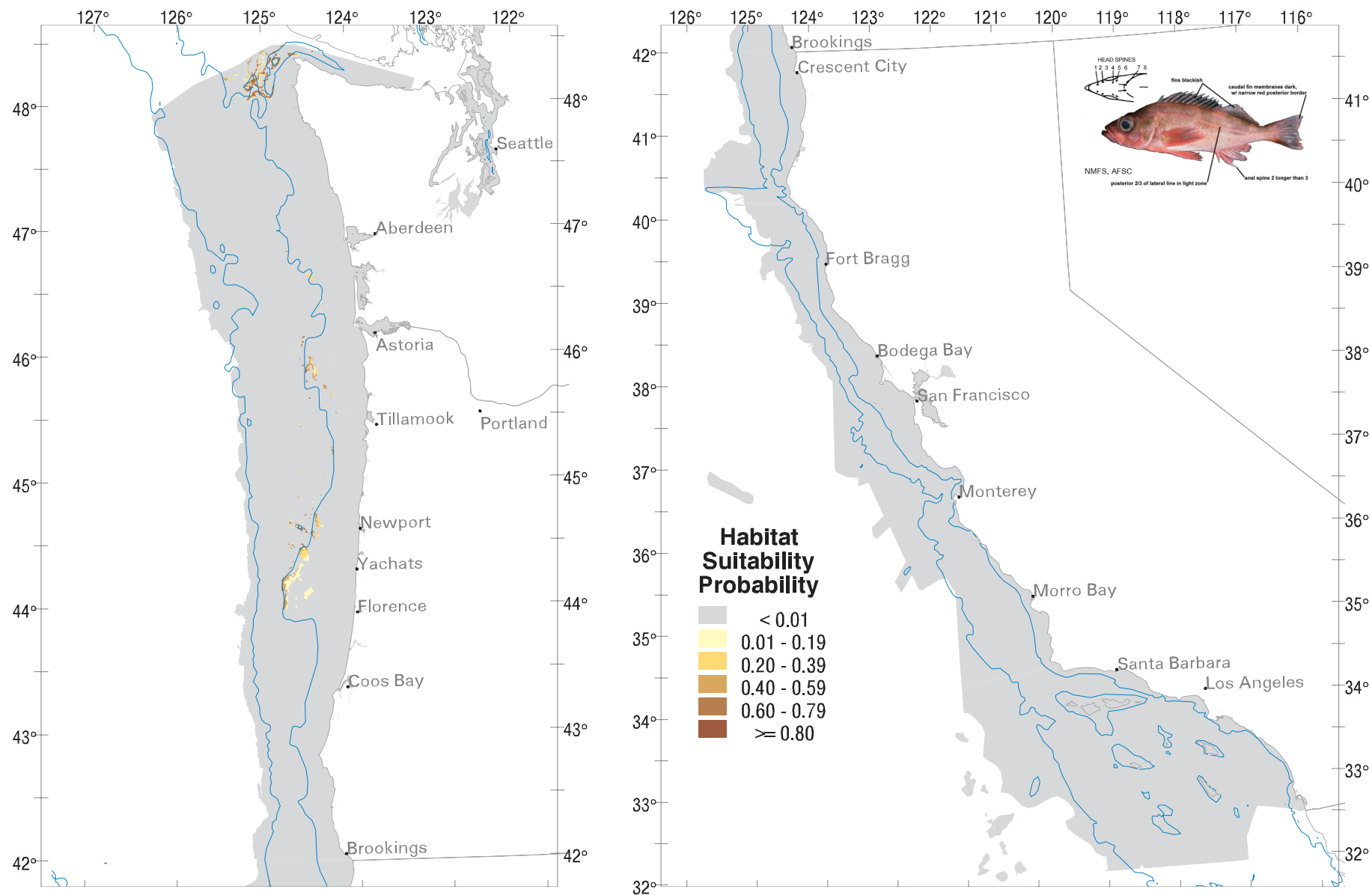
Pacific Coast Groundfish EFH FEIS

December 2005

Greenstriped Rockfish - Adult

Habitat Suitability Probability

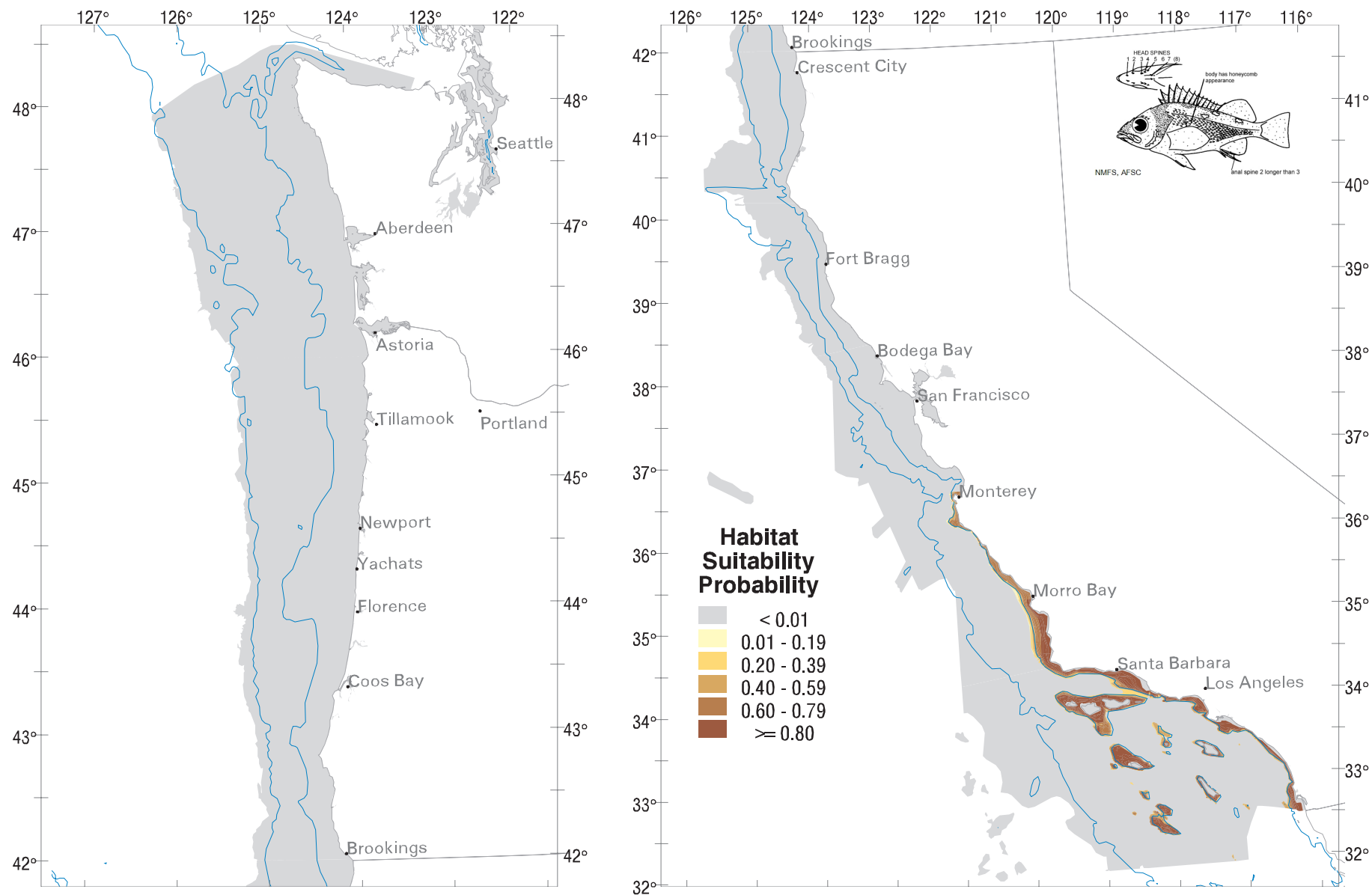|	
▨	< 0.01
▨	0.01 - 0.19
▨	0.20 - 0.39
▨	0.40 - 0.59
▨	0.60 - 0.79
▨	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey

Pacific Coast Groundfish EFH FEIS

December 2005

Greenstriped Rockfish - Juvenile

Habitat Suitability Probability

- < 0.01
- 0.01 - 0.19
- 0.20 - 0.39
- 0.40 - 0.59
- 0.60 - 0.79
- >= 0.80

Seattle
Aberdeen
Astoria
Portland
Tillamook
Newport
Yachats
Florence
Coos Bay
Brookings

Brookings
Crescent City
Fort Bragg
Bodega Bay
San Francisco
Monterey
Morro Bay
Santa Barbara
Los Angeles

HEAD SPINES
1 2 3 4 5 6 7 8
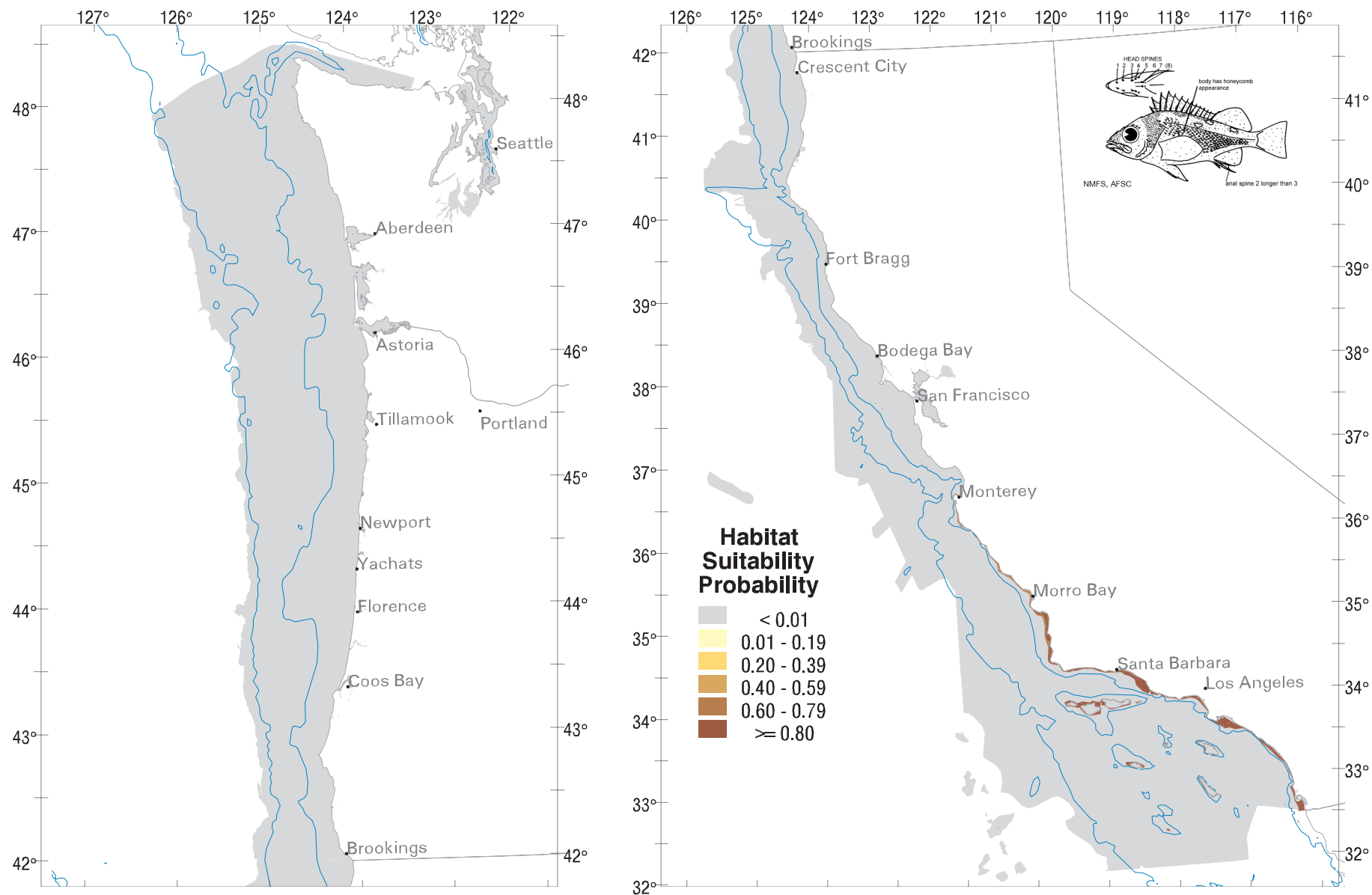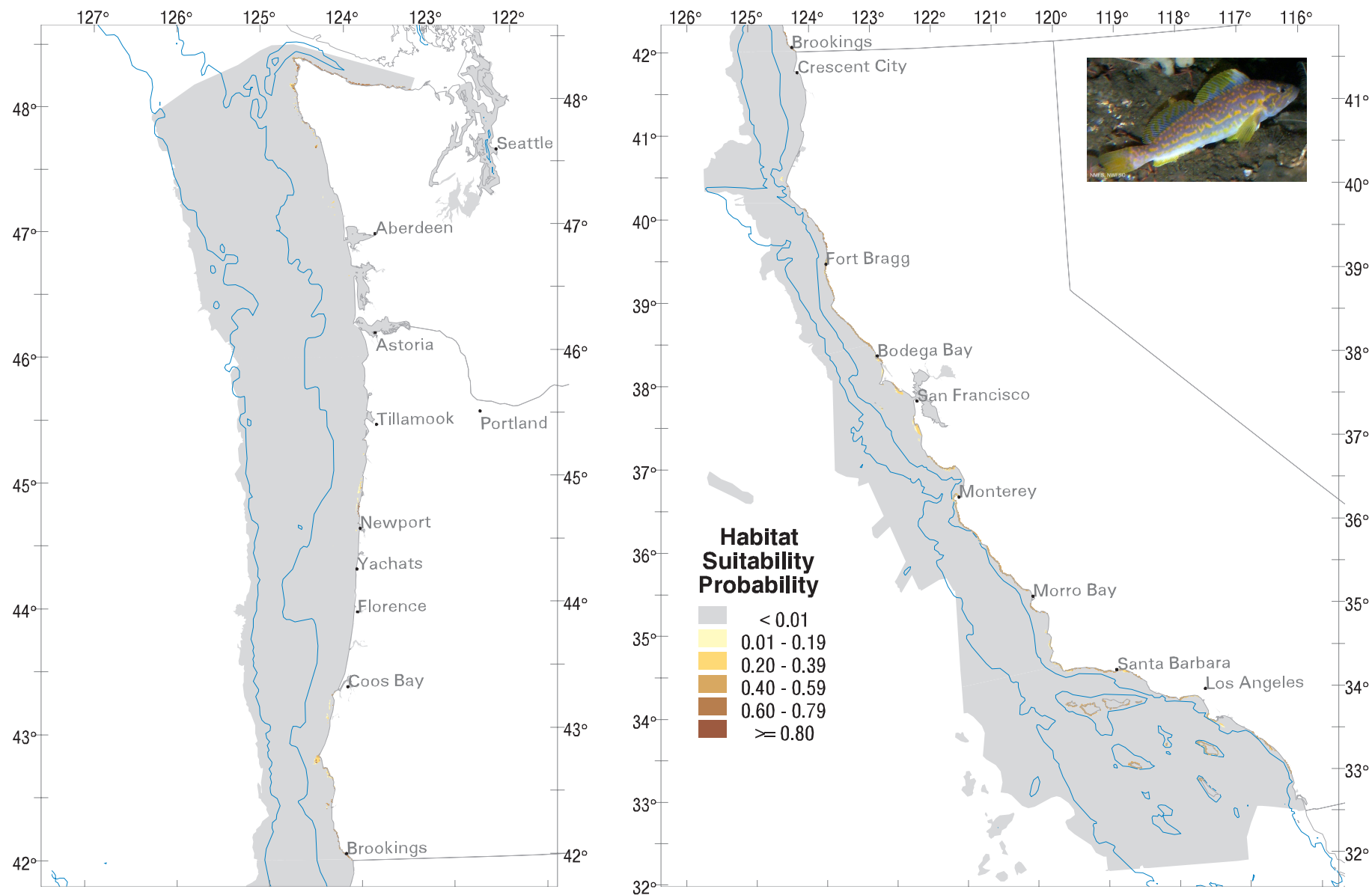body w/ 4 green stripes
NMFS, AFSC
anal spine 2 longer than 3

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Harlequin Rockfish - Adult

Habitat
Suitability
Probability

< 0.01
0.01 - 0.19
0.20 - 0.39
0.40 - 0.59
0.60 - 0.79
>= 0.80

HEAD SPINES
1 2 3 4 5 6 7 8

fins blackish

caudal fin membranes dark,
w/ narrow red posterior border

NMFS, AFSC

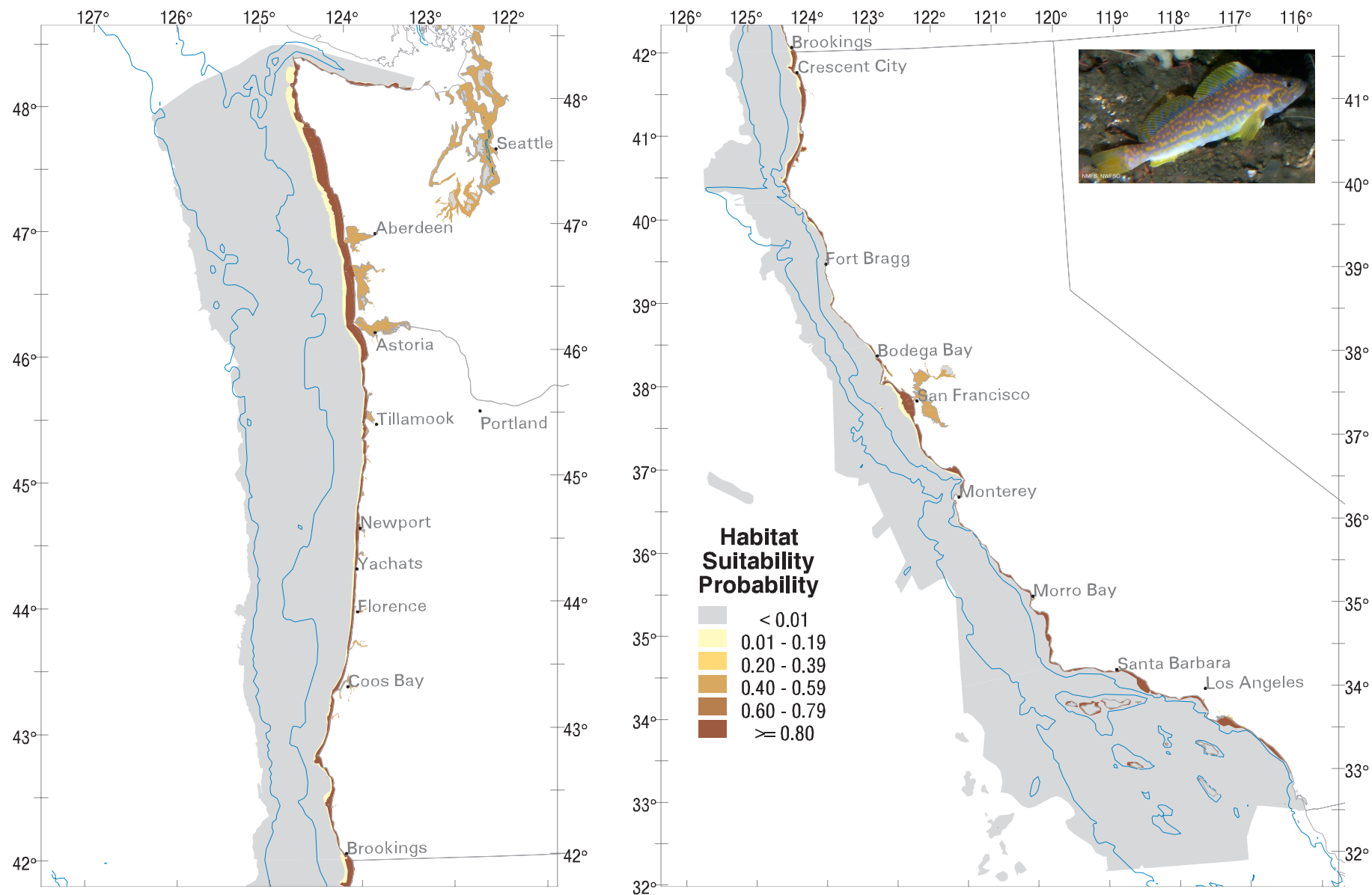posterior 2/3 of lateral line in light zone

anal spine 2 longer than 3

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Honeycomb Rockfish - Adult

Habitat Suitability Probability

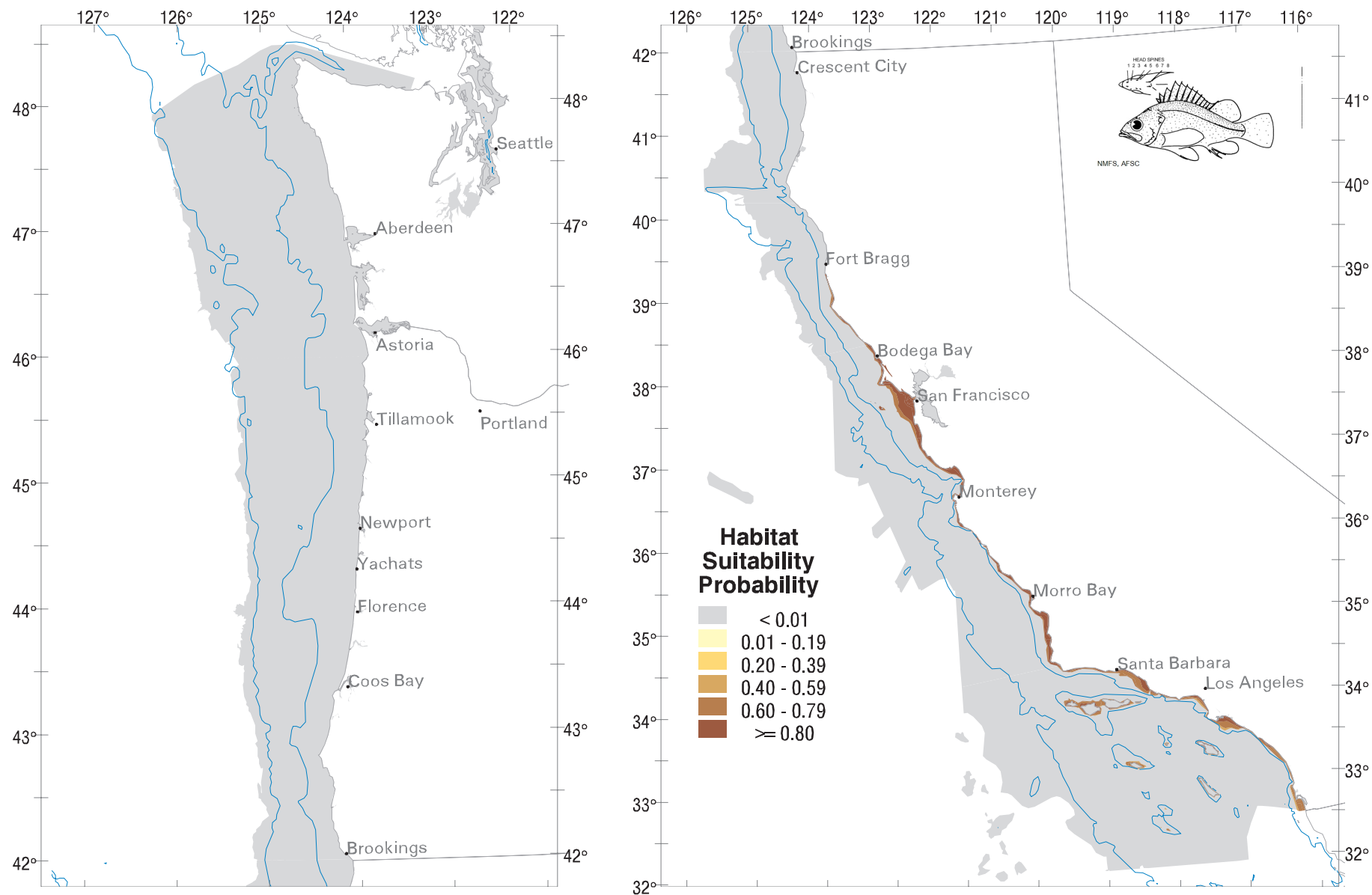|	
▦	< 0.01
▦	0.01 - 0.19
▦	0.20 - 0.39
▦	0.40 - 0.59
▦	0.60 - 0.79
▦	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

Honeycomb Rockfish - Juvenile

Habitat Suitability Probability

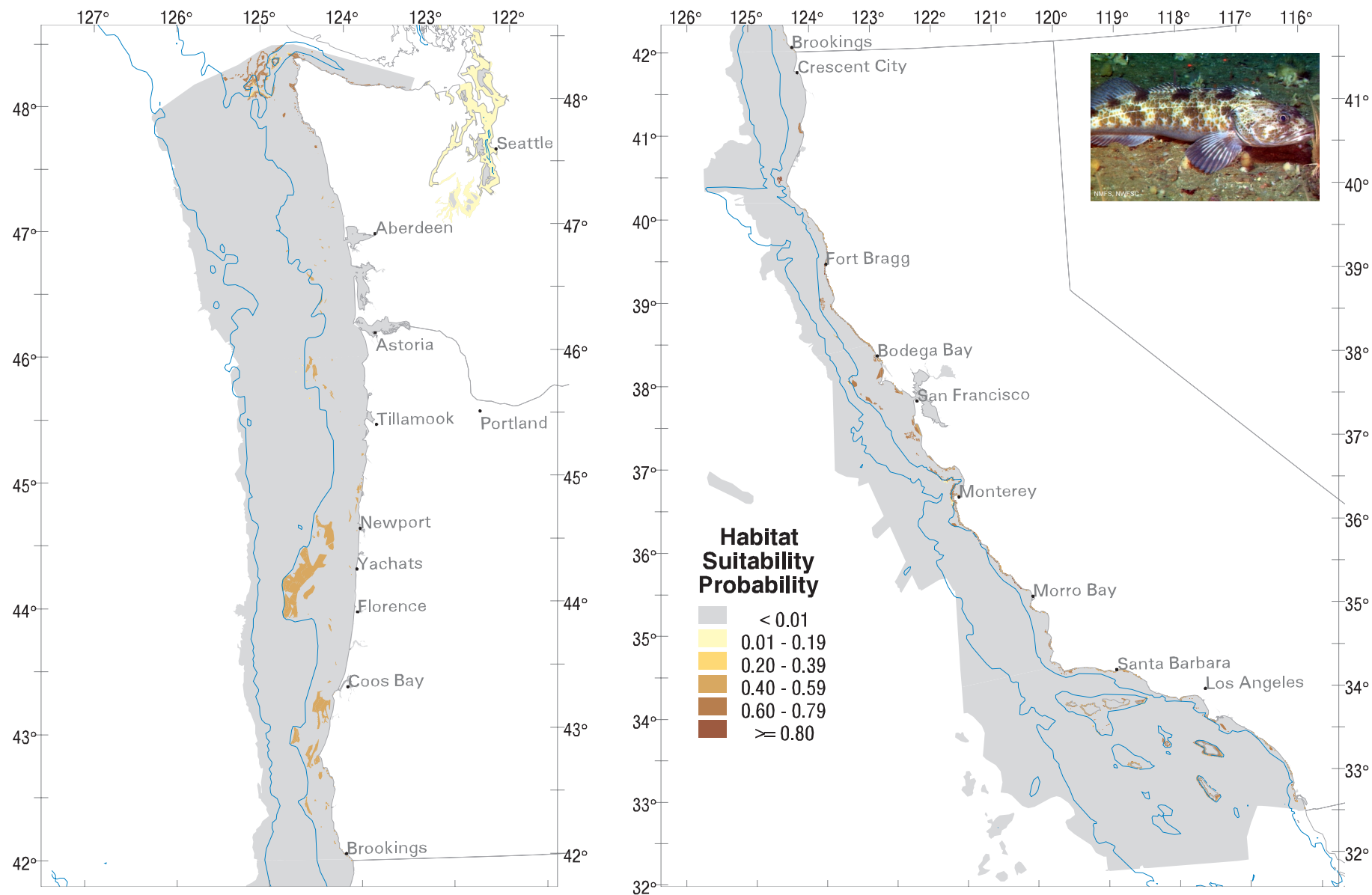|	
(grey)	< 0.01
(pale yellow)	0.01 - 0.19
(yellow)	0.20 - 0.39
(light brown)	0.40 - 0.59
(brown)	0.60 - 0.79
(dark brown)	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Kelp Greenling - Adult

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date : November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from : HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Kelp Greenling - Larvae

Habitat Suitability Probability

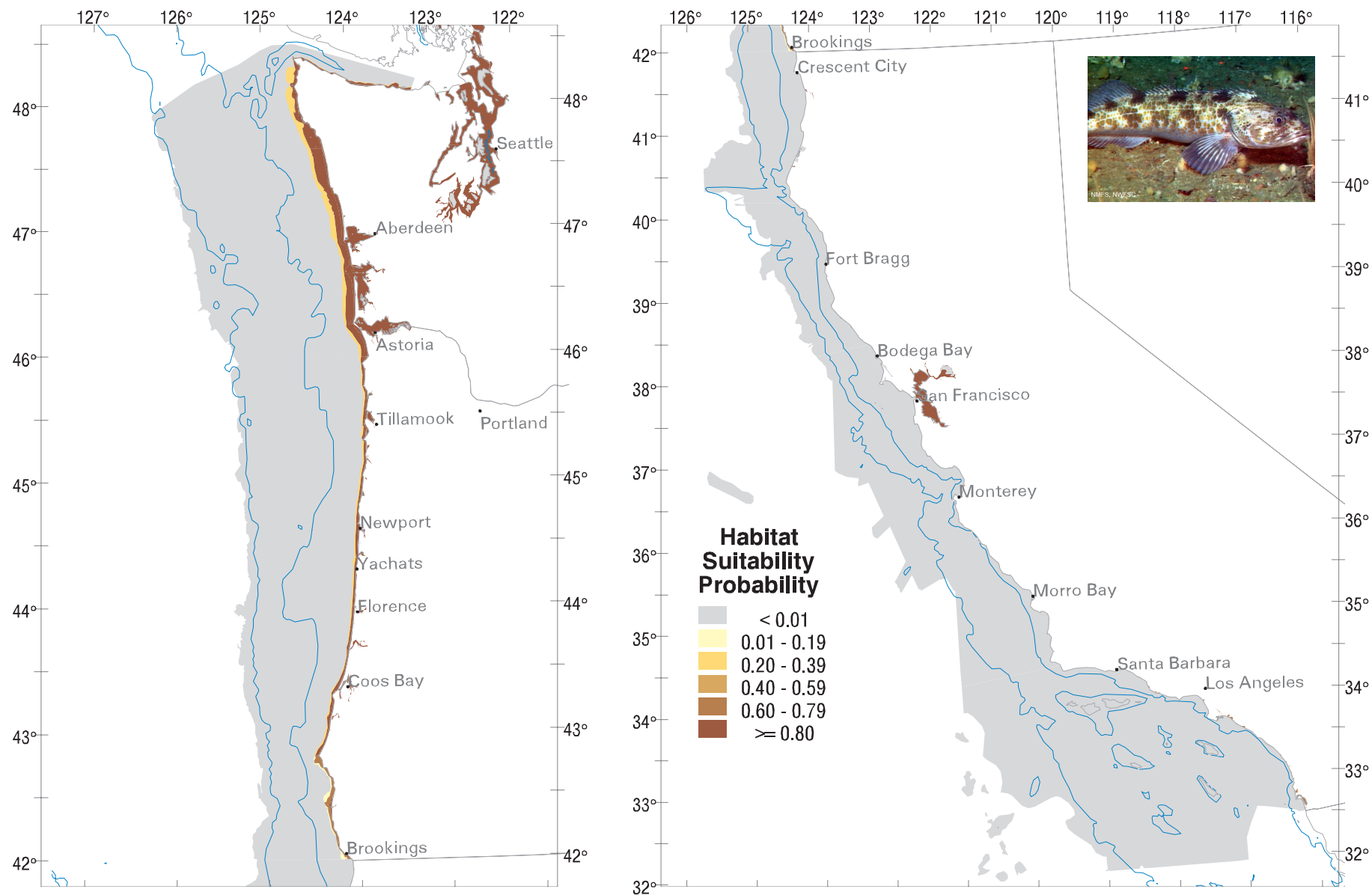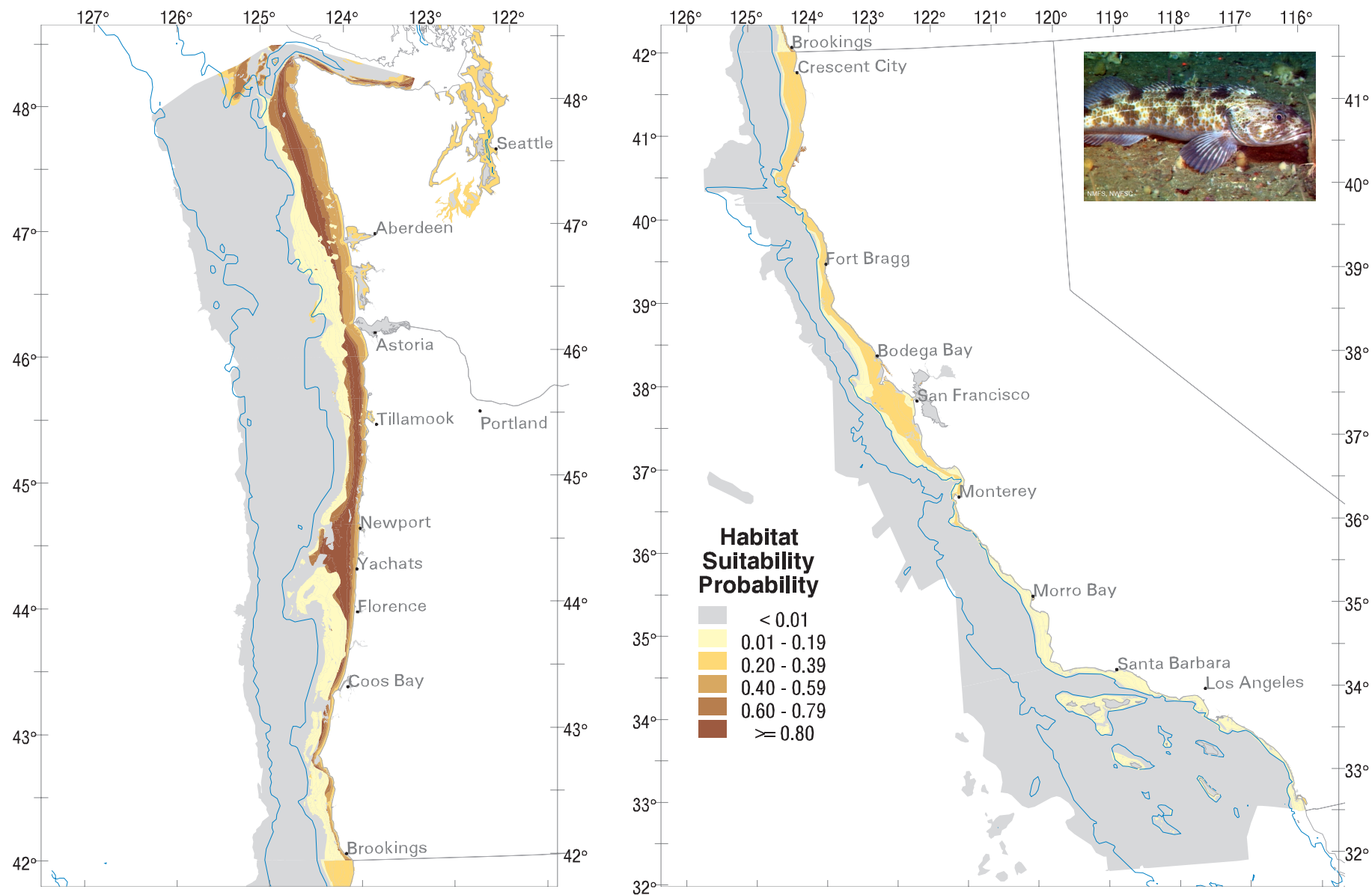|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Kelp Rockfish - Adult

127° 126° 125° 124° 123° 122°

48°

47°

46°

45°

44°

43°

42°

Seattle

Aberdeen

Astoria

Portland

Tillamook

Newport

Yachats

Florence

Coos Bay

Brookings

126° 125° 124° 123° 122° 121° 120° 119° 118° 117° 116°

42°

41°

40°

39°

38°

37°

36°

35°

34°

33°

32°

Brookings

Crescent City

Fort Bragg

Bodega Bay

San Francisco

Monterey

Morro Bay

Santa Barbara

Los Angeles

HEAD SPINES
1 2 3 4 5 6 7 8

NMFS, AFSC

**Habitat
Suitability
Probability**

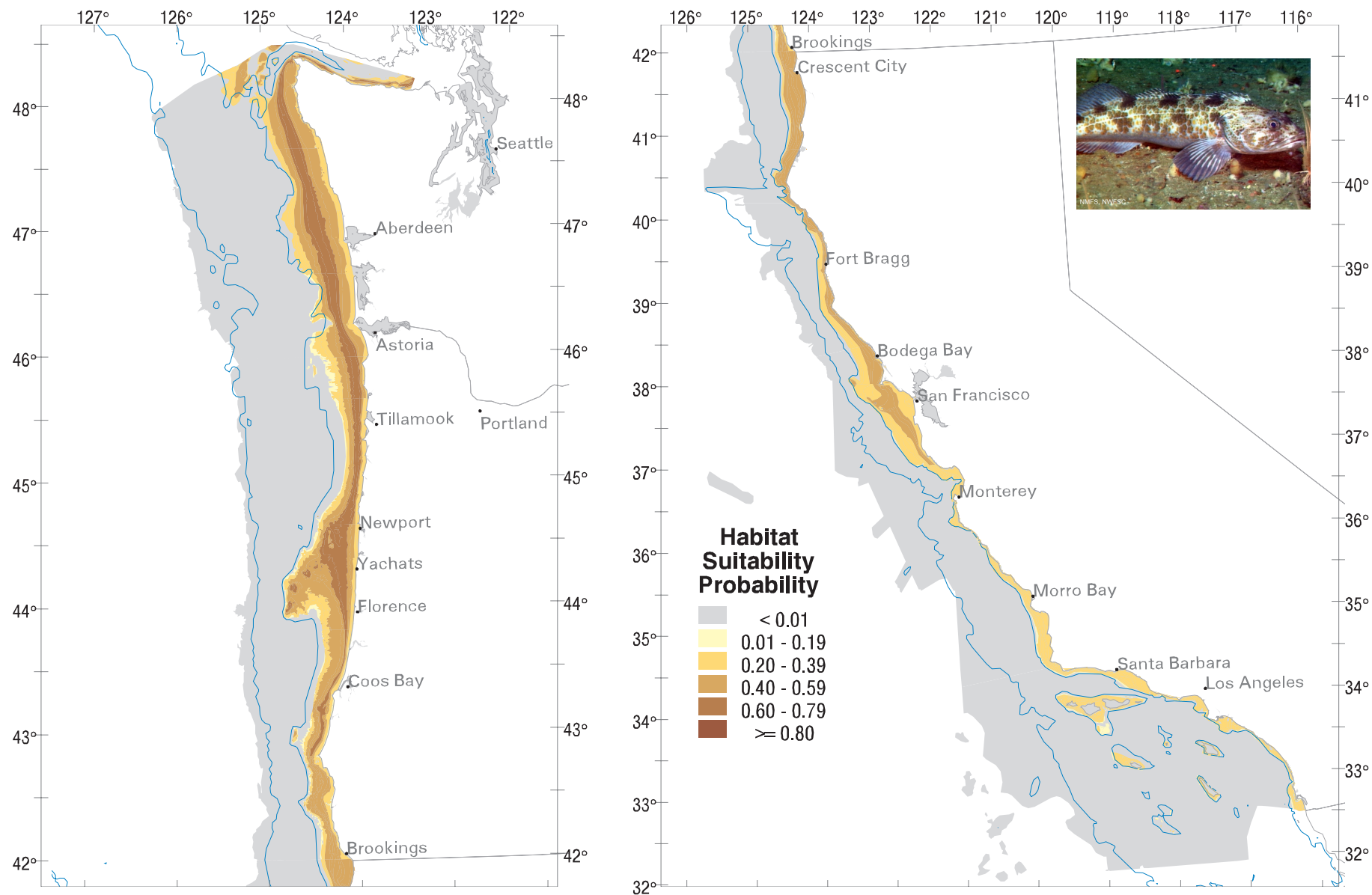|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Lingcod - Adult

Habitat Suitability Probability

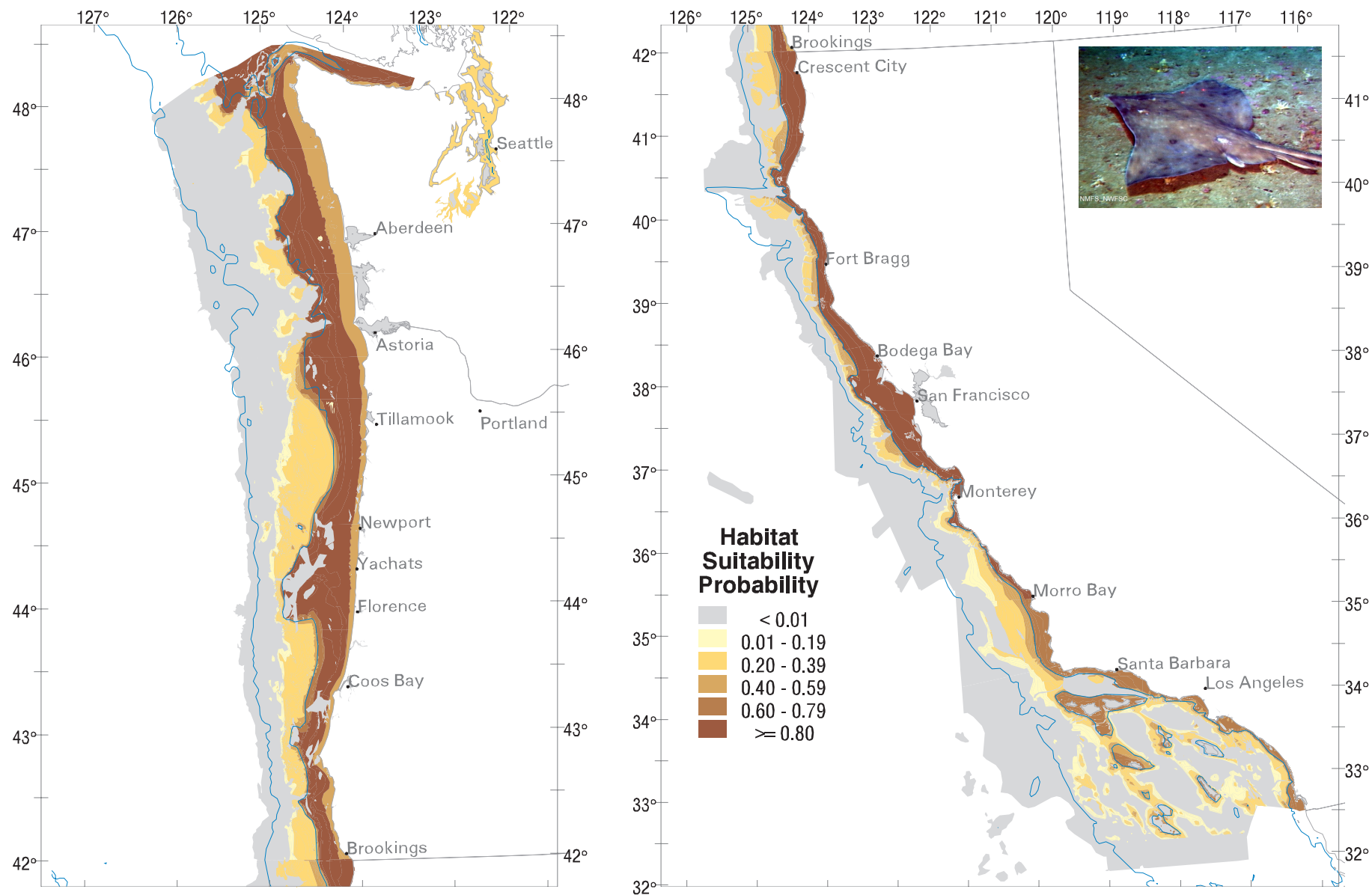|	
▢	< 0.01
▢	0.01 - 0.19
▢	0.20 - 0.39
▢	0.40 - 0.59
▢	0.60 - 0.79
▢	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey

Pacific Coast Groundfish EFH FEIS

December 2005

Lingcod - Eggs

Habitat Suitability Probability

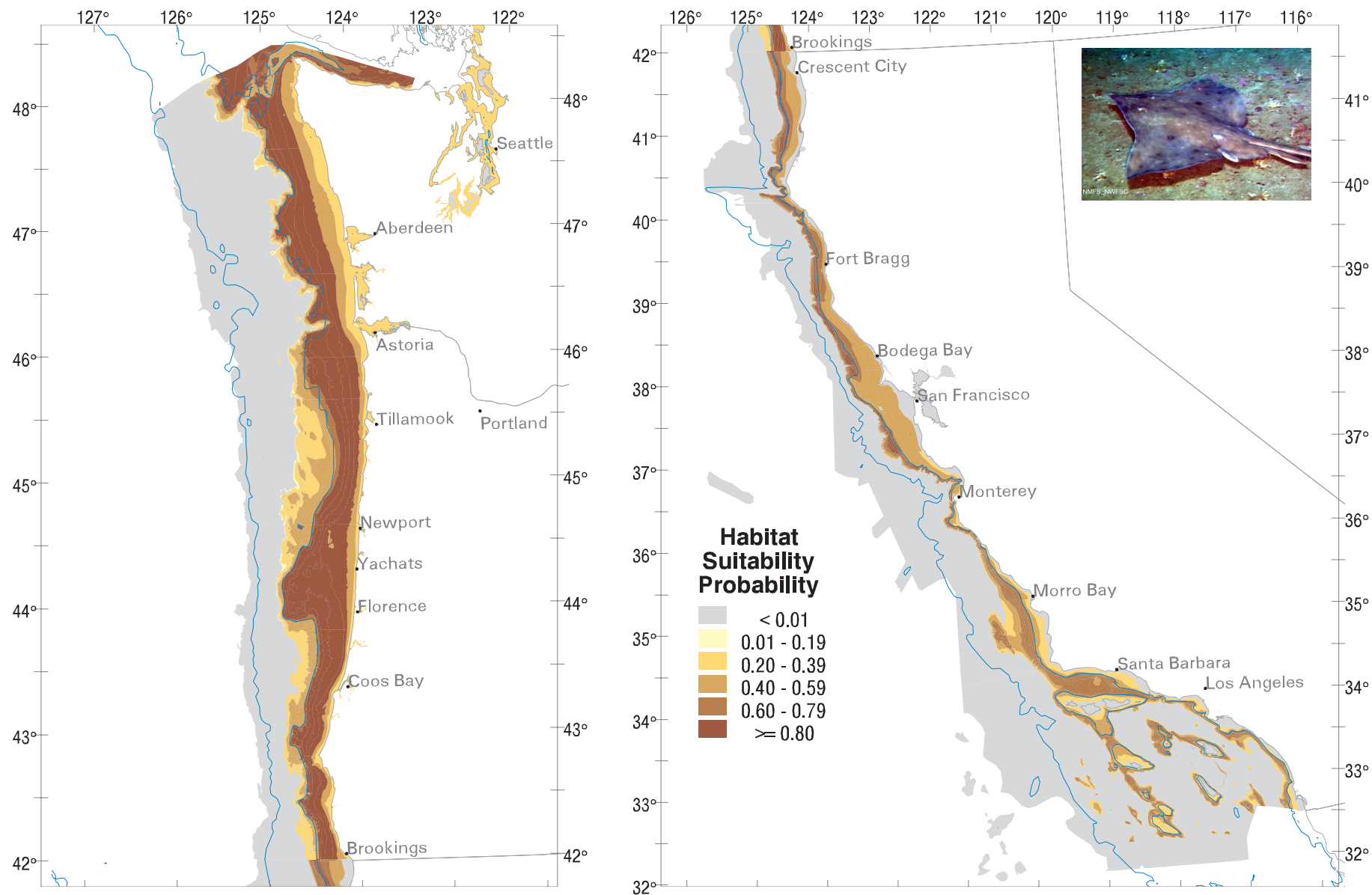|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Lingcod - Juvenile

**Habitat
Suitability
Probability**

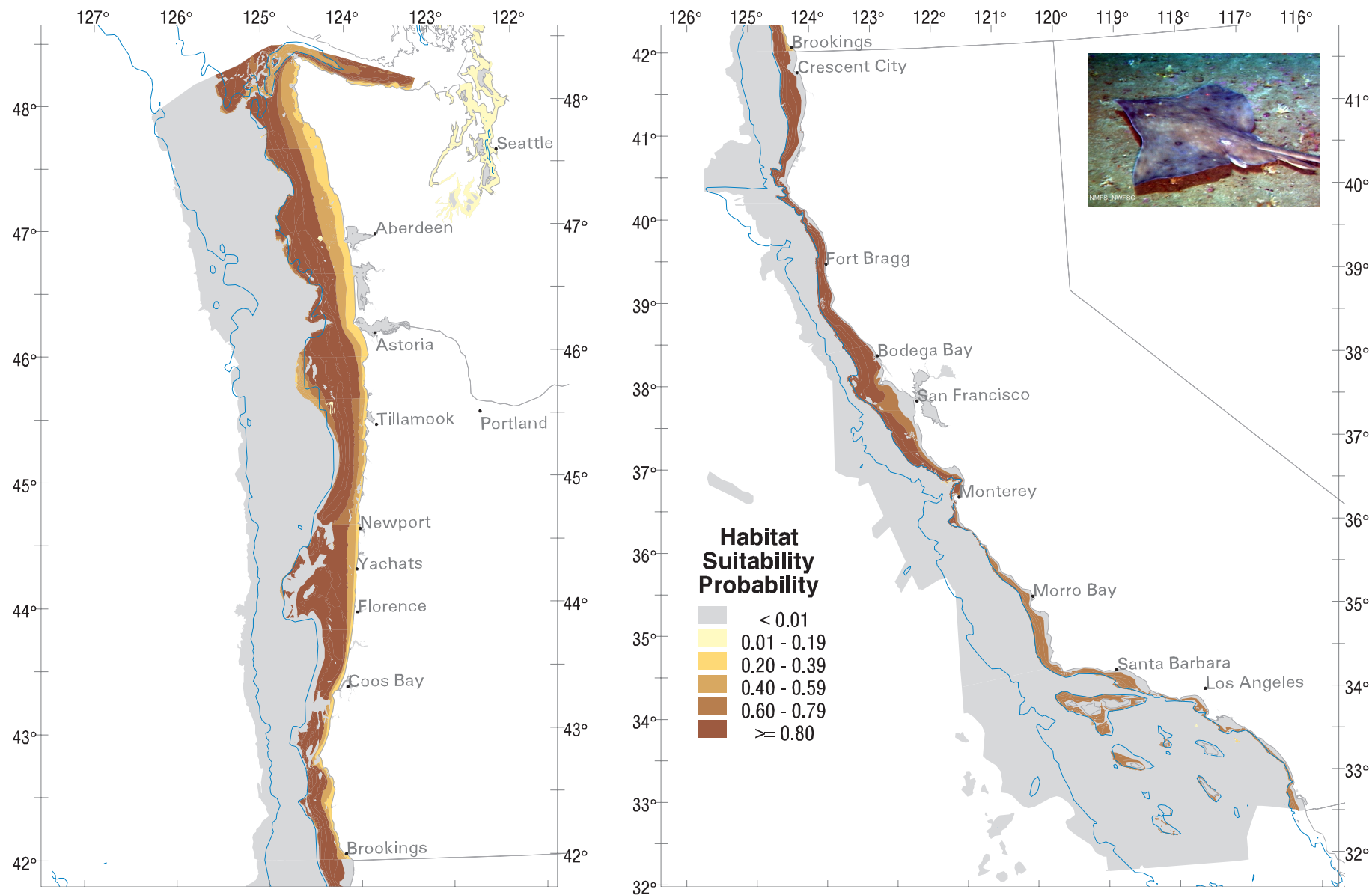|	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Lingcod - Larvae

Habitat Suitability Probability

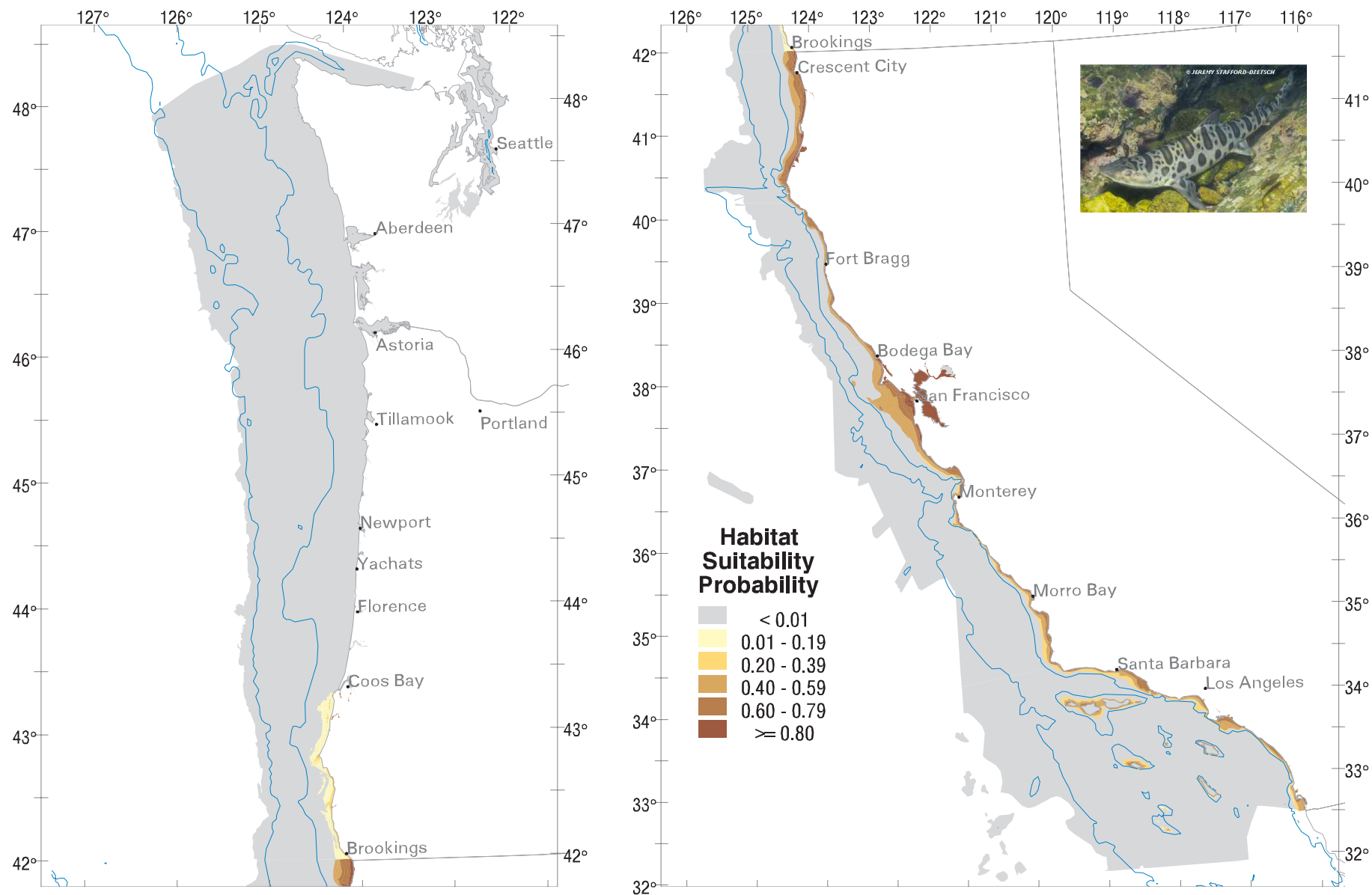|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

Longnose Skate - Adult

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Longnose Skate - Eggs

**Habitat
Suitability
Probability**

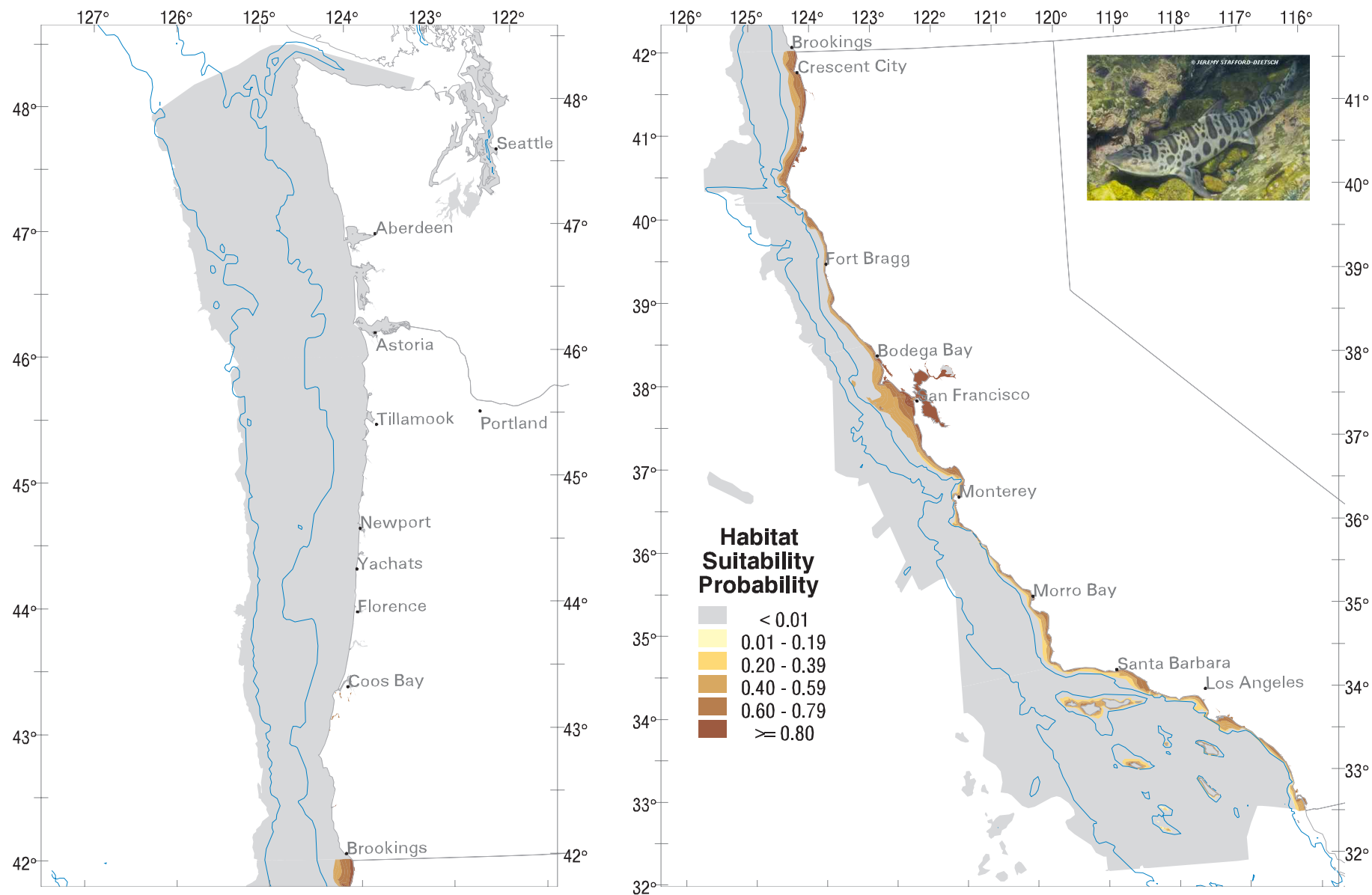|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Longnose Skate - Juvenile

Habitat Suitability Probability

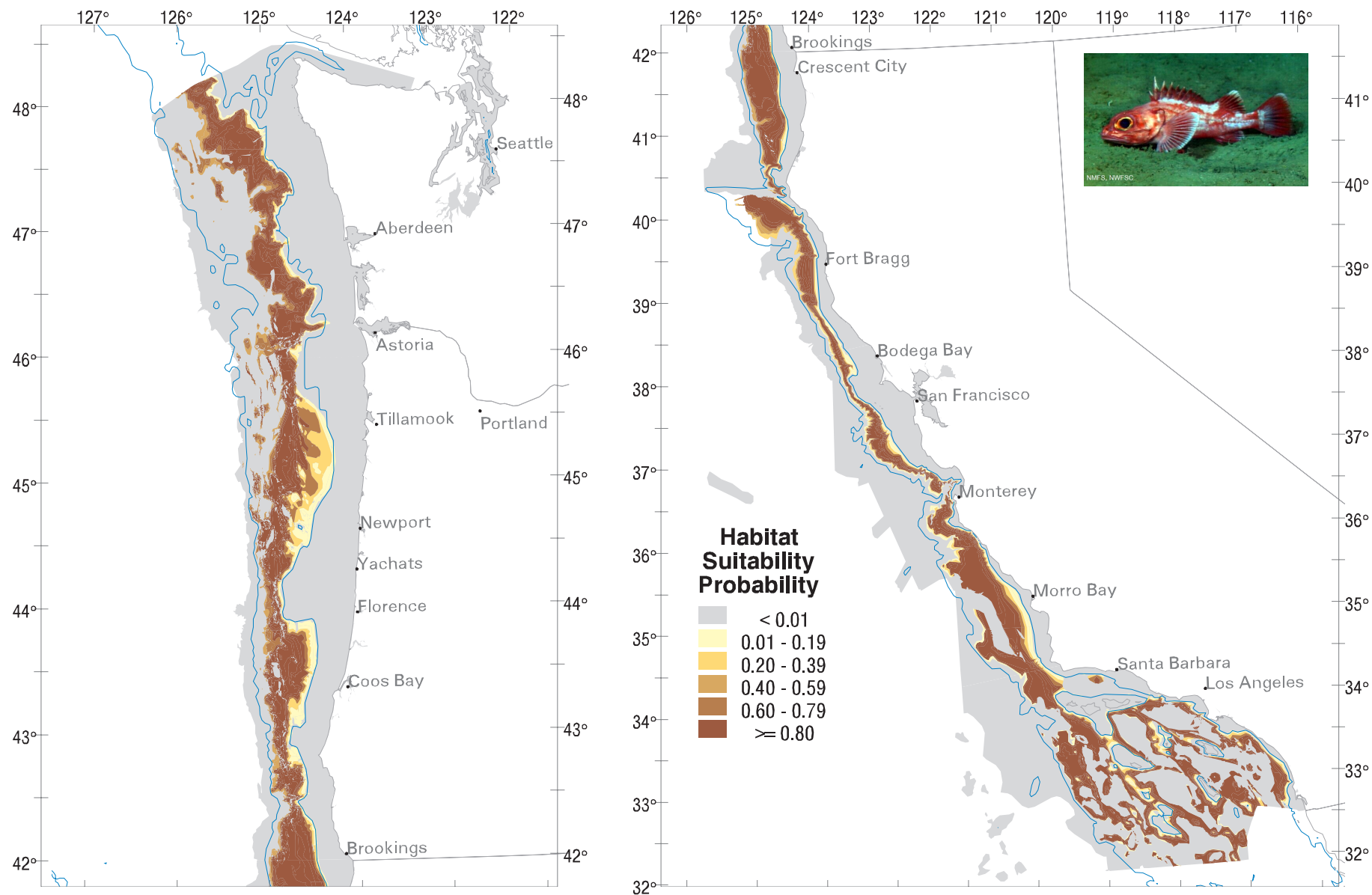|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Leopard Shark - Adult

© JEREMY STAFFORD-DEETSCH

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Left map labels (north to south): Seattle, Aberdeen, Astoria, Portland, Tillamook, Newport, Yachats, Florence, Coos Bay, Brookings

Right map labels (north to south): Brookings, Crescent City, Fort Bragg, Bodega Bay, San Francisco, Monterey, Morro Bay, Santa Barbara, Los Angeles
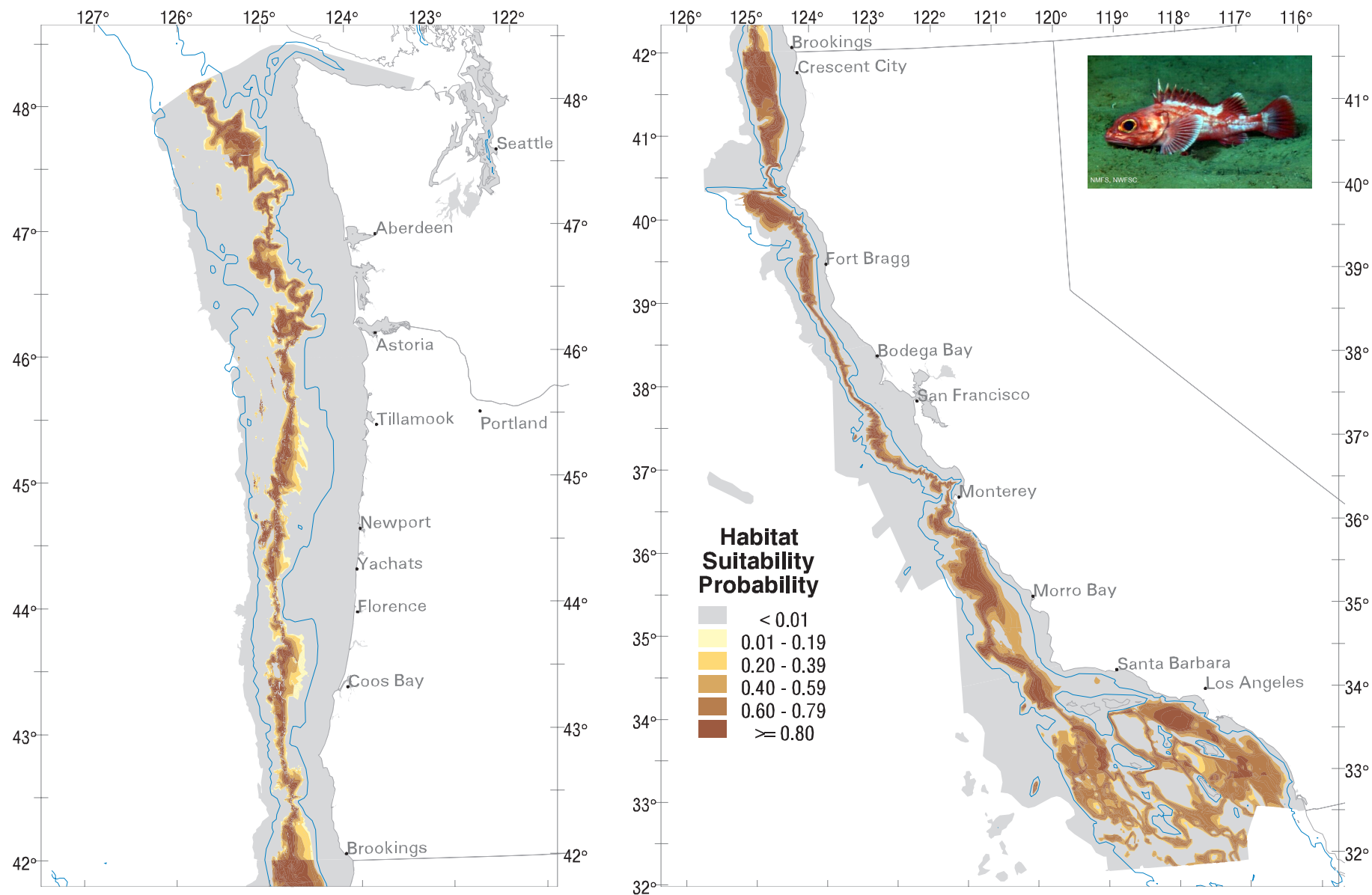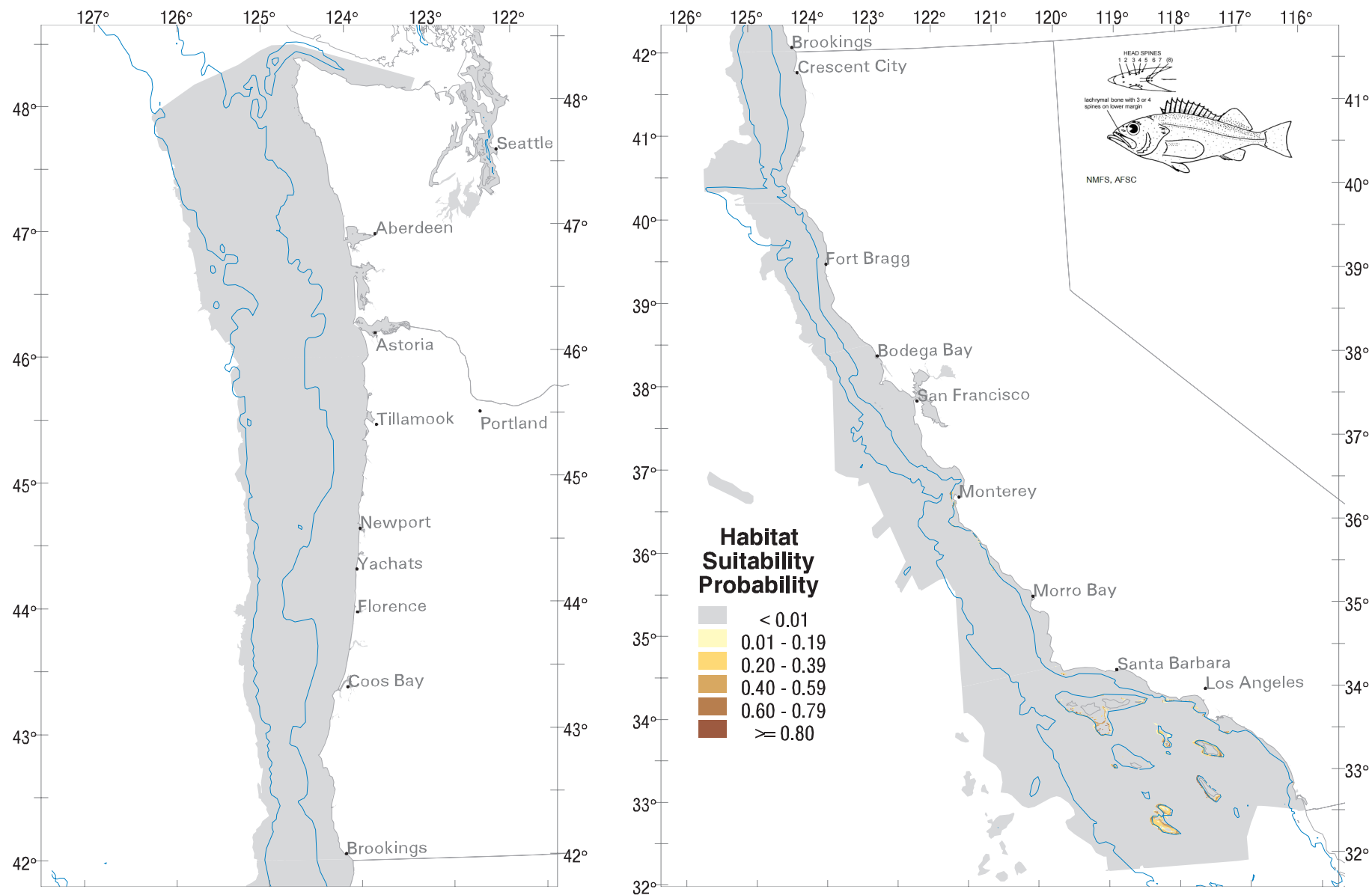
Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Leopard Shark - Juvenile

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

© JEREMY STAFFORD-DEETSCH

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Longspine Thornyhead - Adult

Habitat Suitability Probability

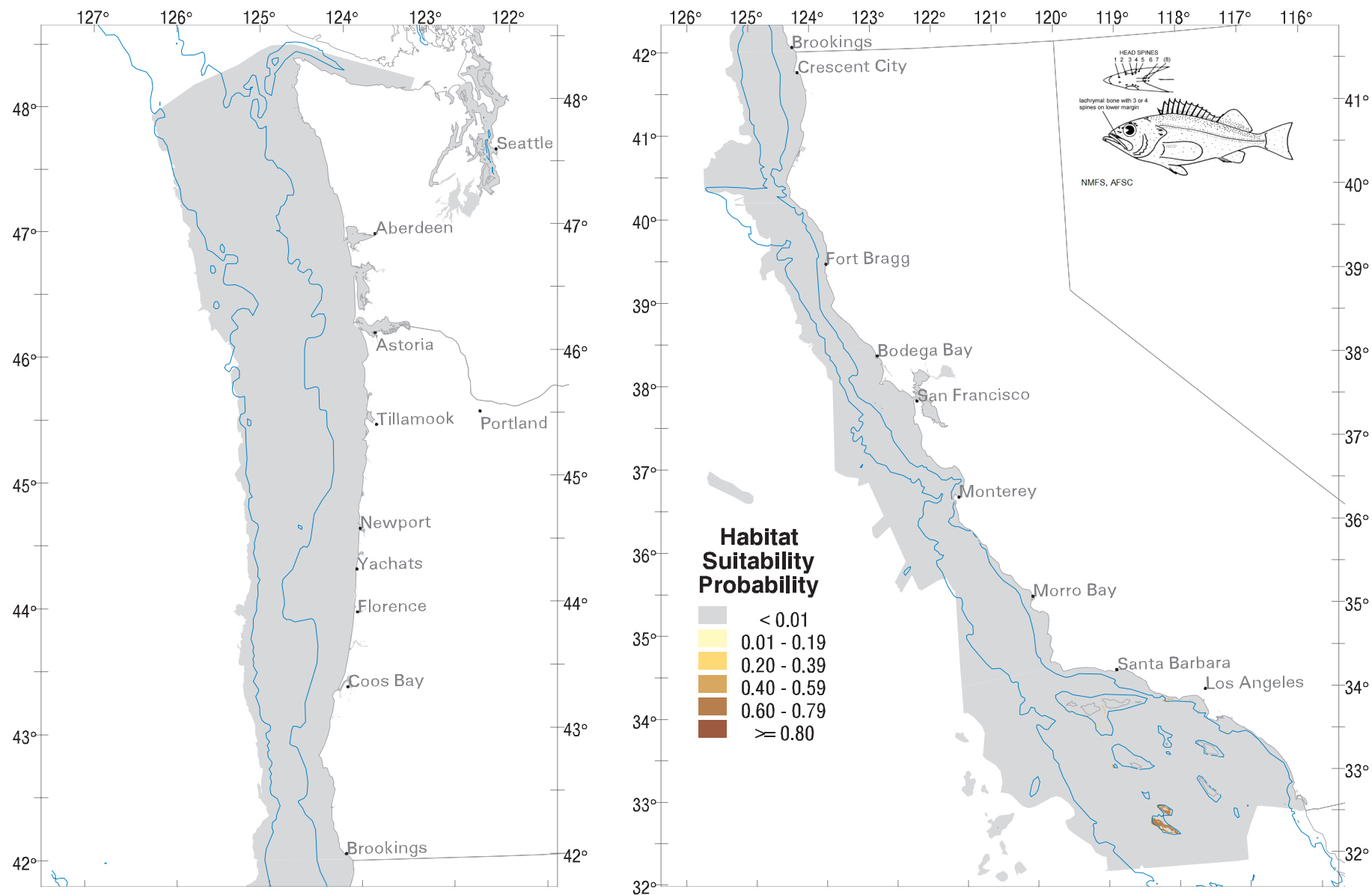|	
![gray]	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 02, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: 'HUD & Survey'

Pacific Coast Groundfish EFH FEIS

December 2005

Longspine Thornyhead - Juvenile

Habitat Suitability Probability

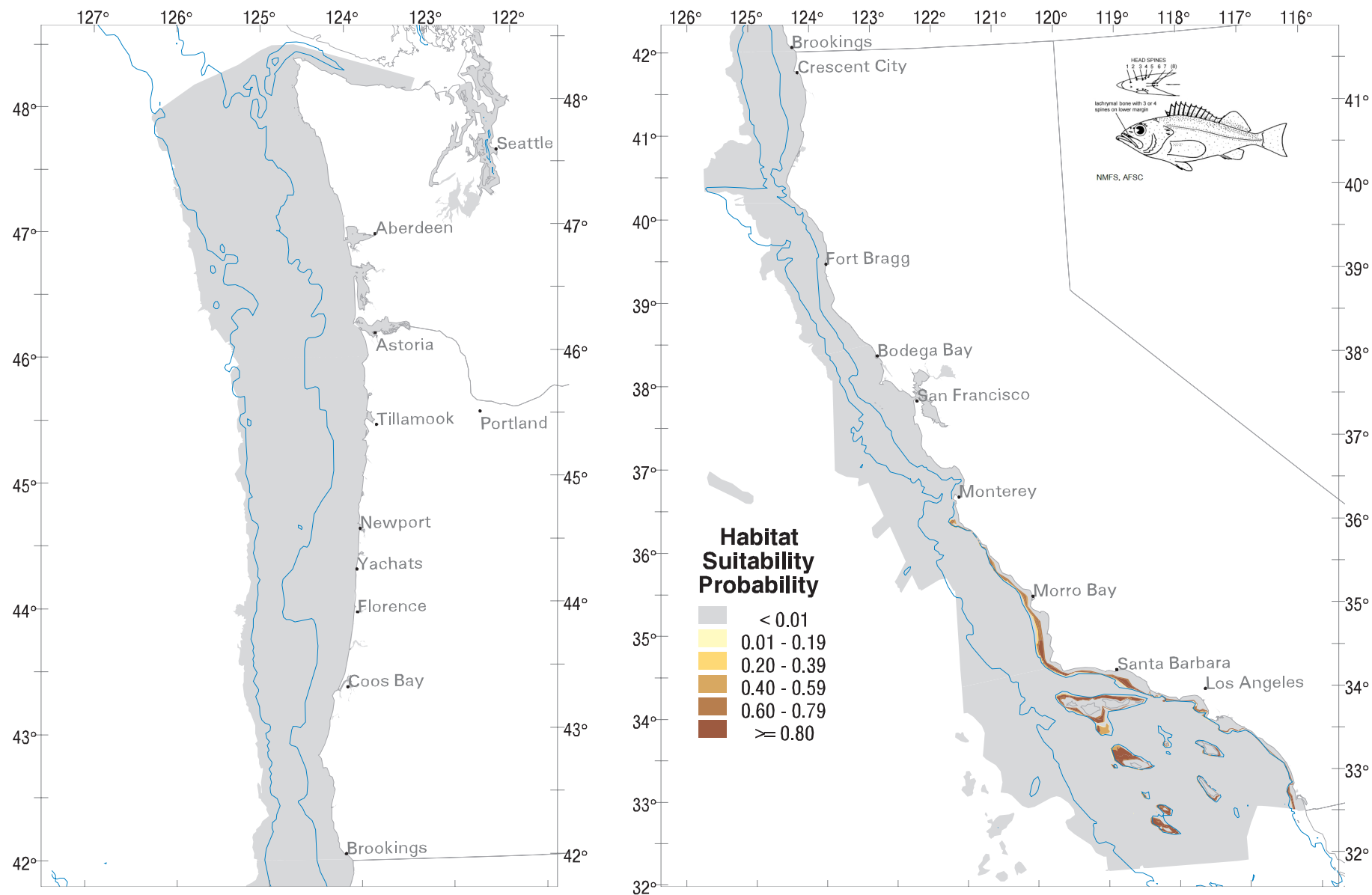|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

December 2005

Mexican Rockfish - Adult

**Habitat
Suitability
Probability**

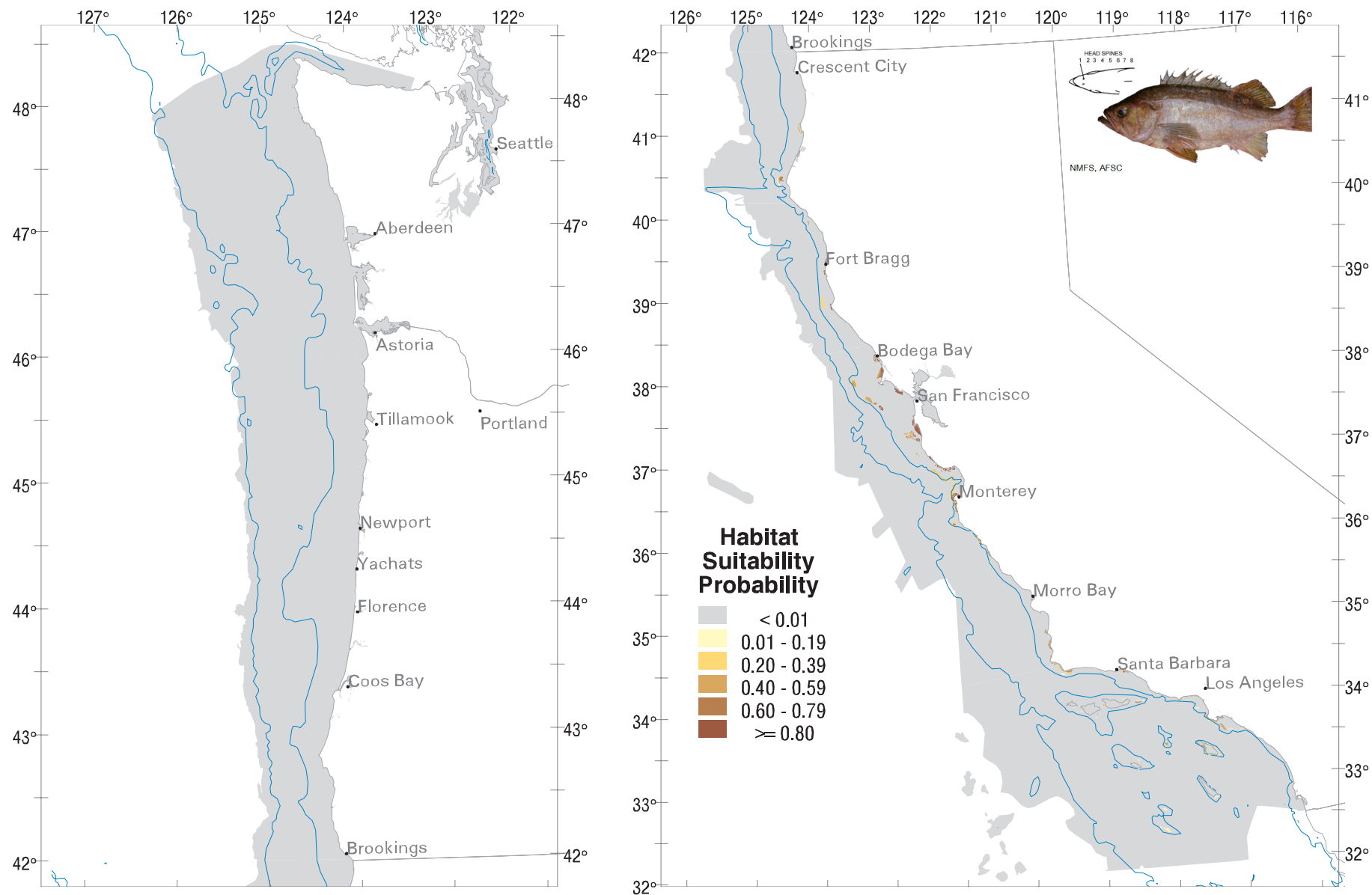|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date : November 01 , 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from : HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Mexican Rockfish - Juvenile

HEAD SPINES
1 2 3 4 5 6 7 (8)

lachrymal bone with 3 or 4
spines on lower margin

NMFS, AFSC

**Habitat
Suitability
Probability**

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Left map locations (top to bottom): Seattle, Aberdeen, Astoria, Tillamook, Portland, Newport, Yachats, Florence, Coos Bay, Brookings

Right map locations (top to bottom): Brookings, Crescent City, Fort Bragg, Bodega Bay, San Francisco, Monterey, Morro Bay, Santa Barbara, Los Angeles
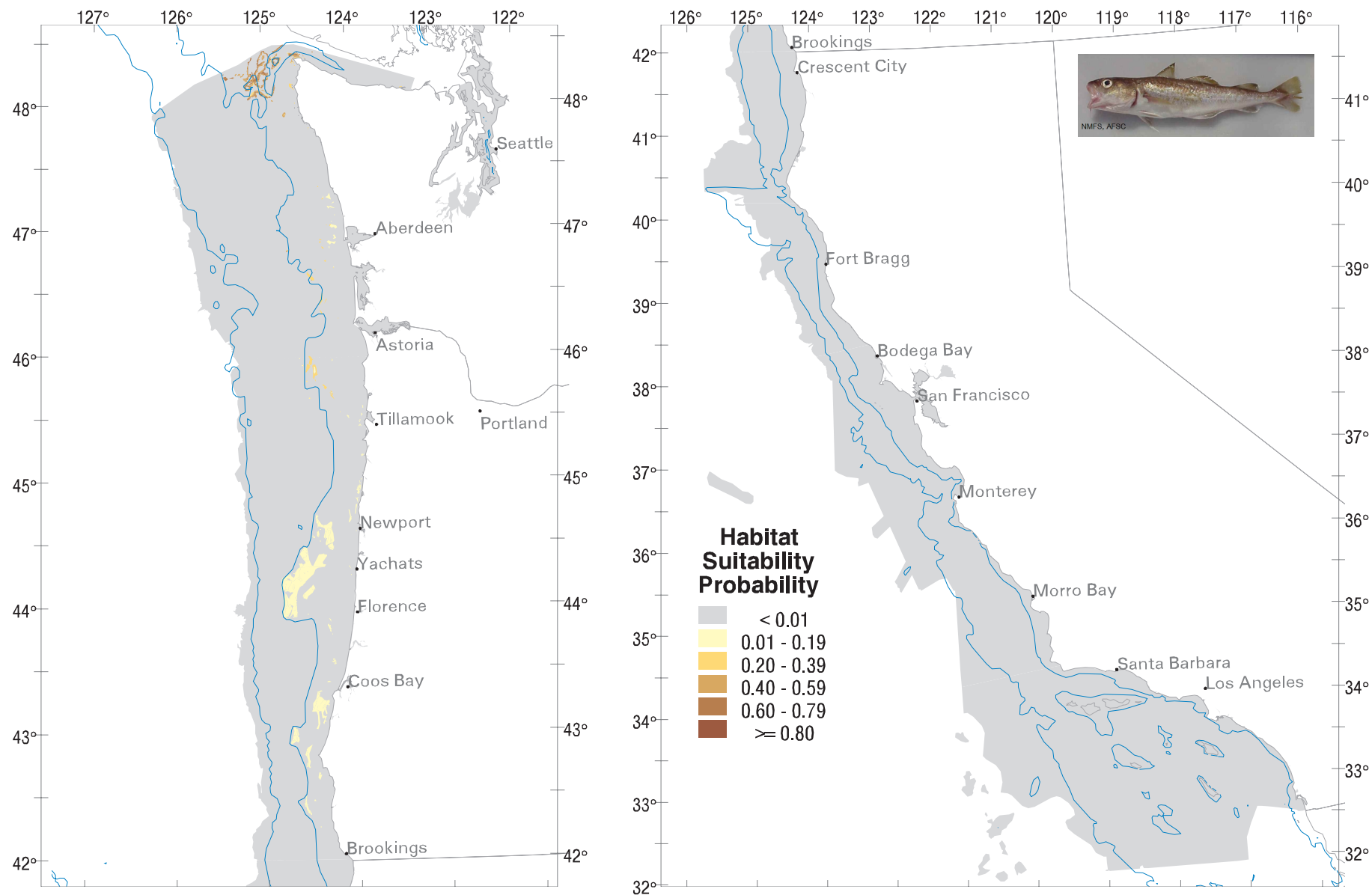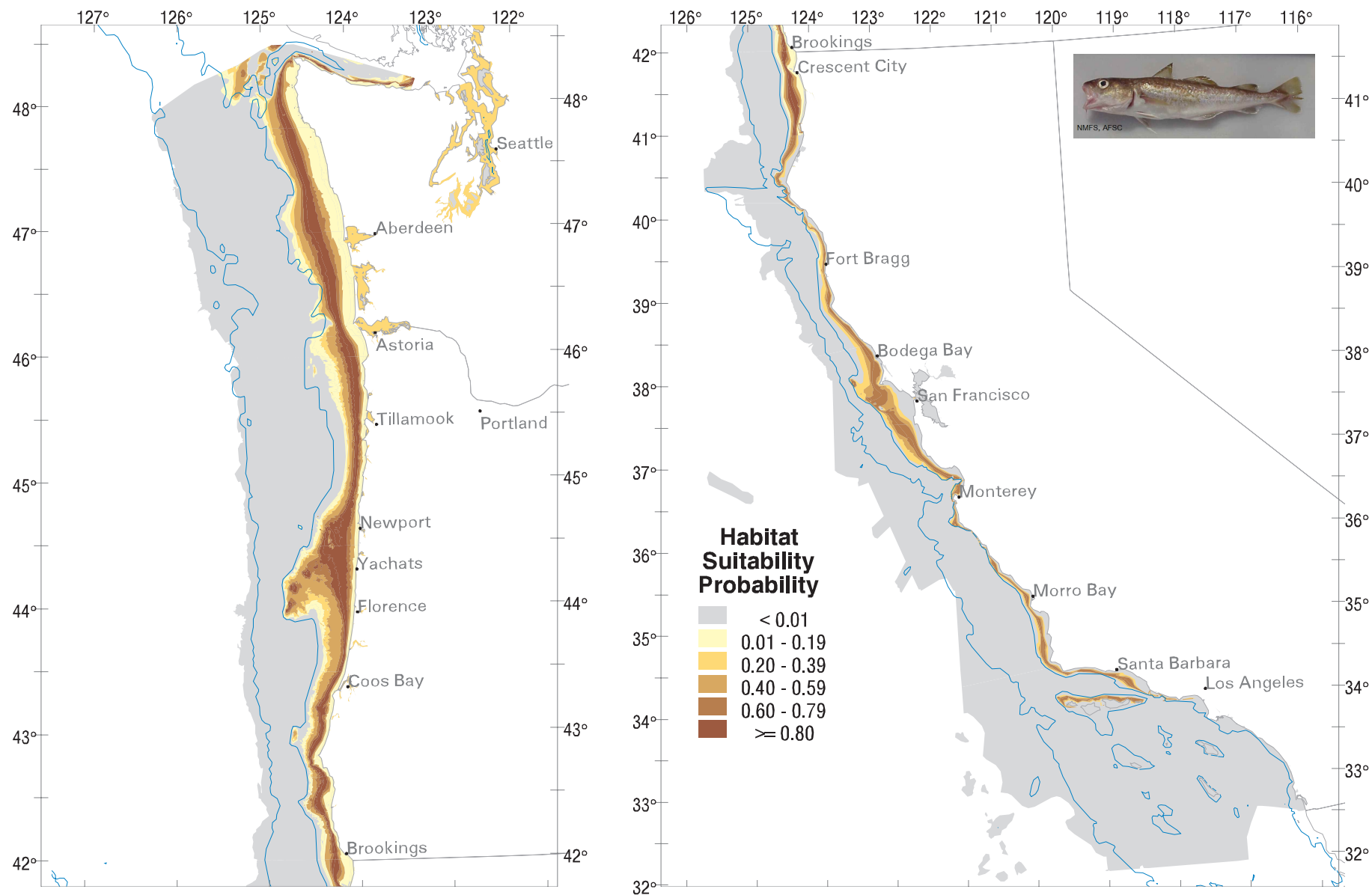
Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Mexican Rockfish - Larvae

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

HEAD SPINES

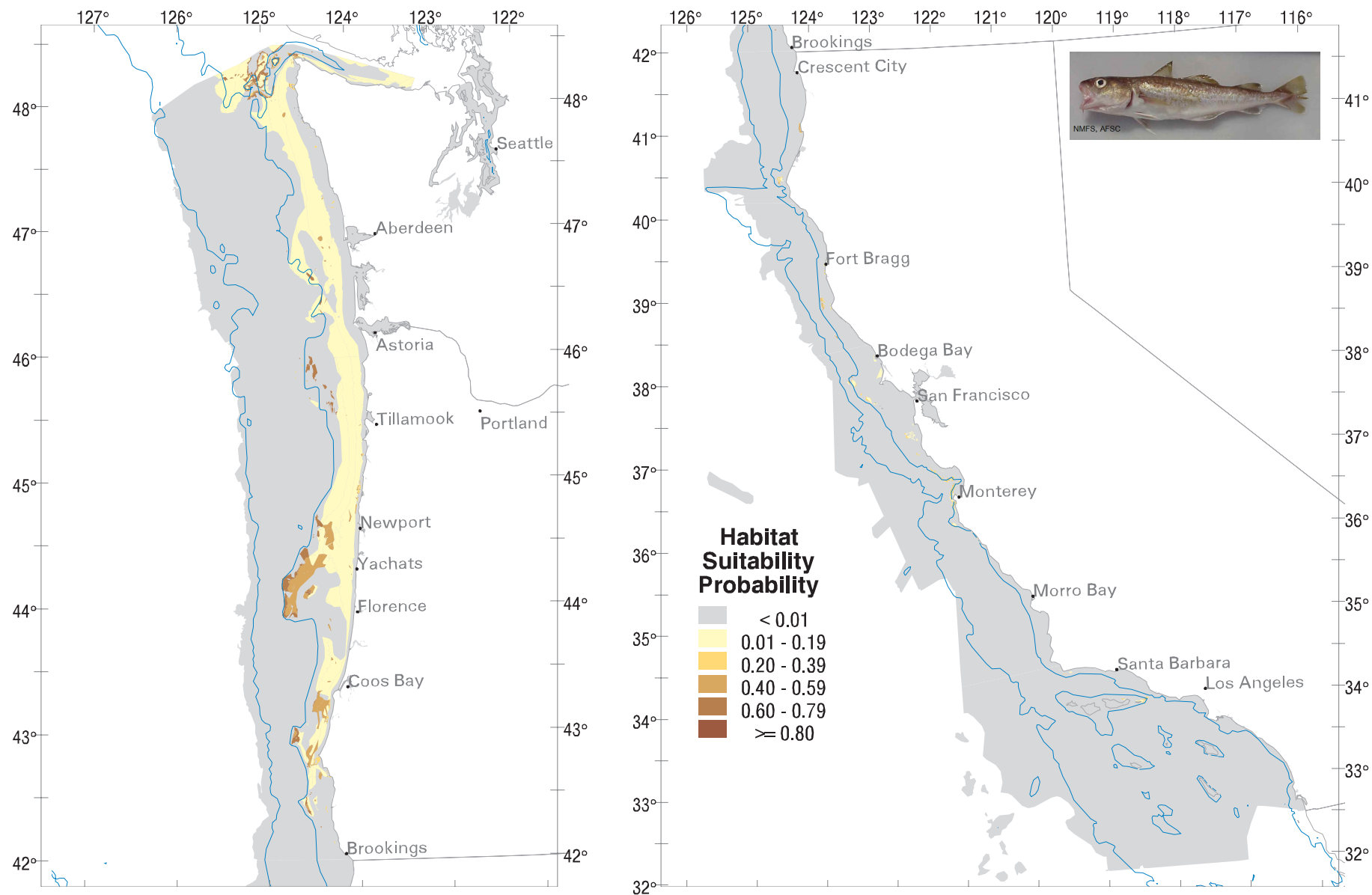lachrymal bone with 3 or 4 spines on lower margin

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Olive Rockfish - Adult

Habitat Suitability Probability

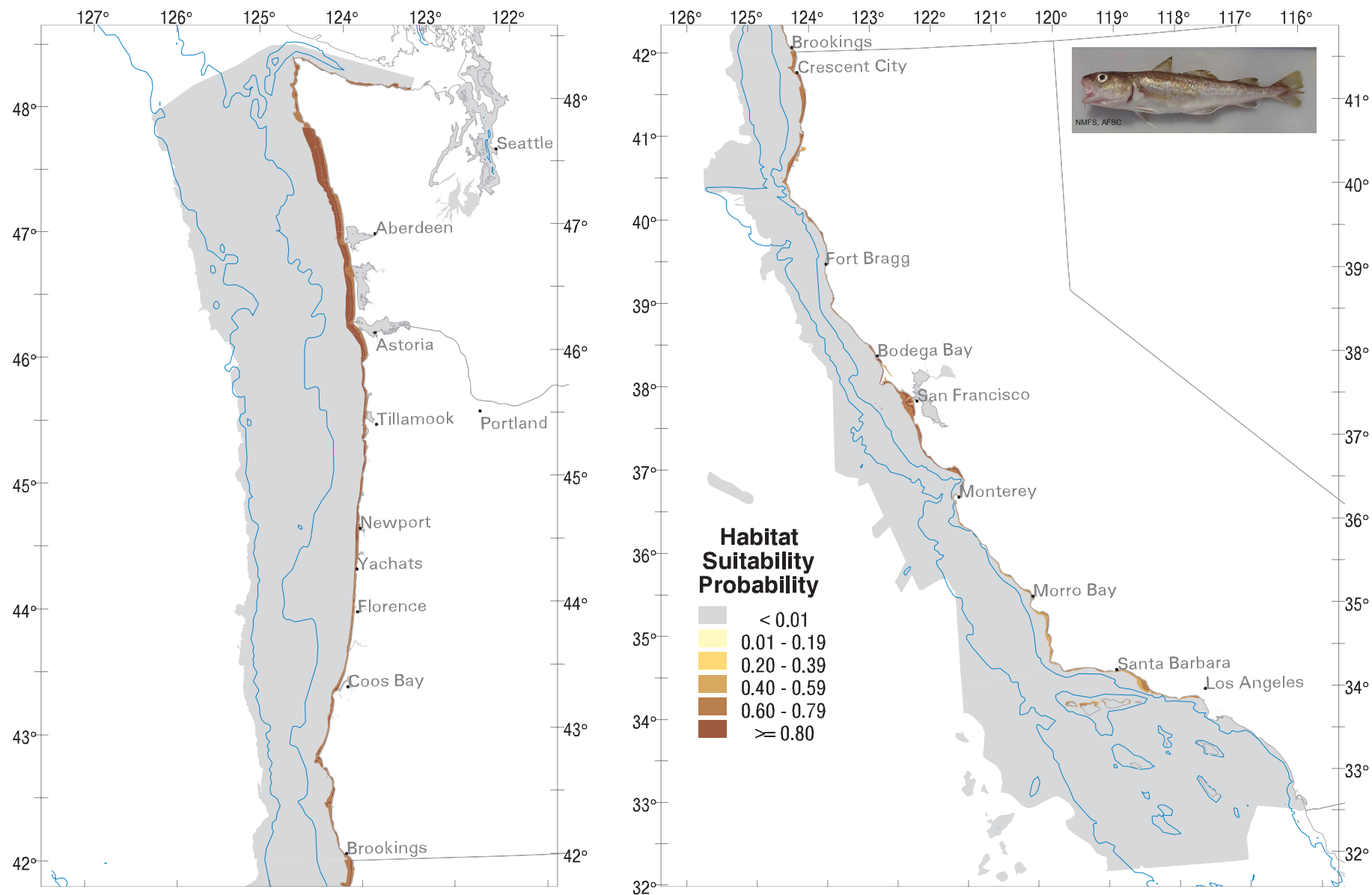|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

HEAD SPINES
1 2 3 4 5 6 7 8

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Pacific Cod - Adult

Habitat Suitability Probability

|	
■ (gray)	< 0.01
■ (pale yellow)	0.01 - 0.19
■ (yellow)	0.20 - 0.39
■ (light brown)	0.40 - 0.59
■ (brown)	0.60 - 0.79
■ (dark brown)	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey

Pacific Cod - Eggs

Habitat Suitability Probability

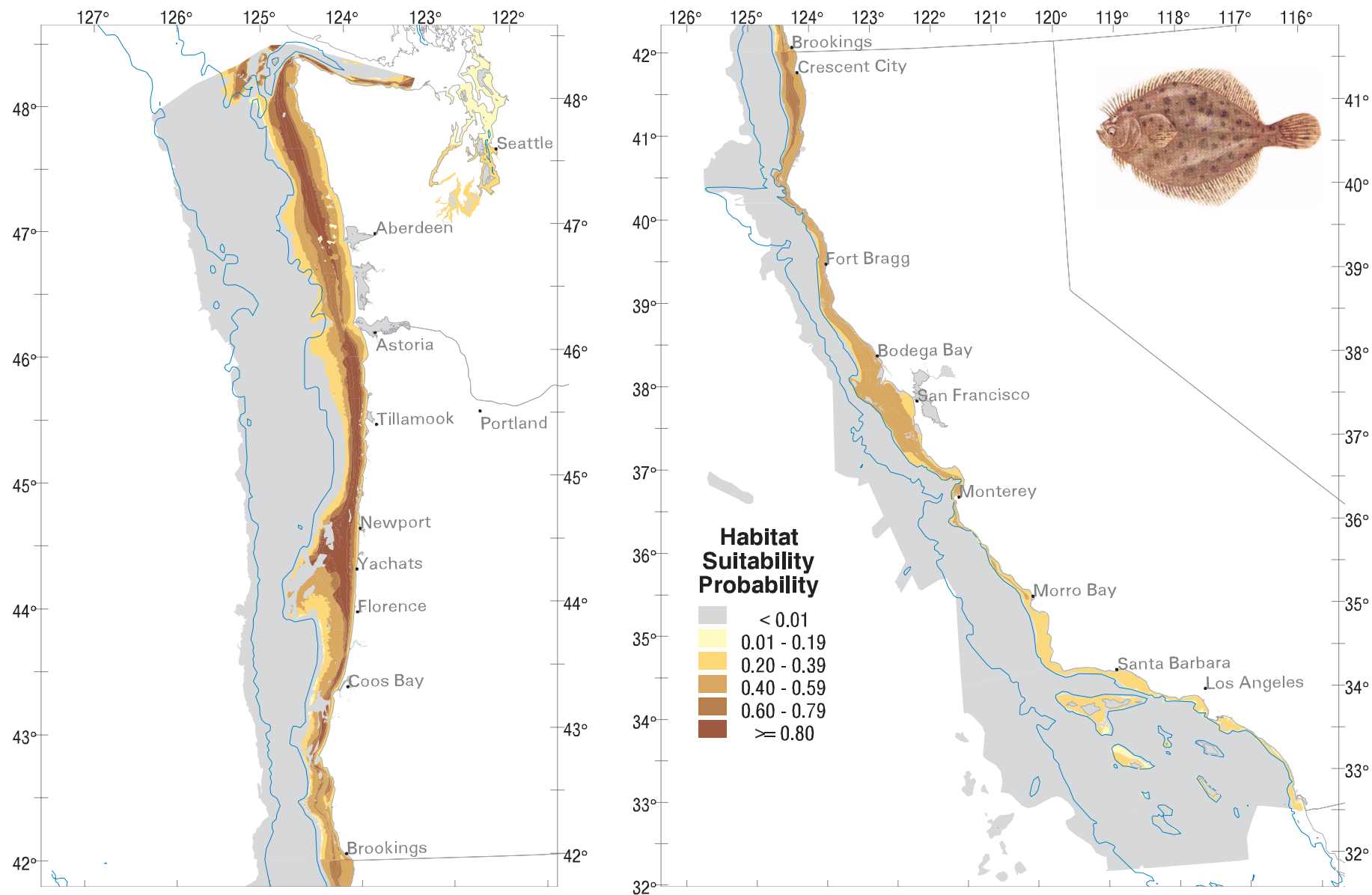|	
▨	< 0.01
▨	0.01 - 0.19
▨	0.20 - 0.39
▨	0.40 - 0.59
▨	0.60 - 0.79
▨	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Pacific Cod - Juvenile

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Pacific Cod - Larvae

Habitat Suitability Probability

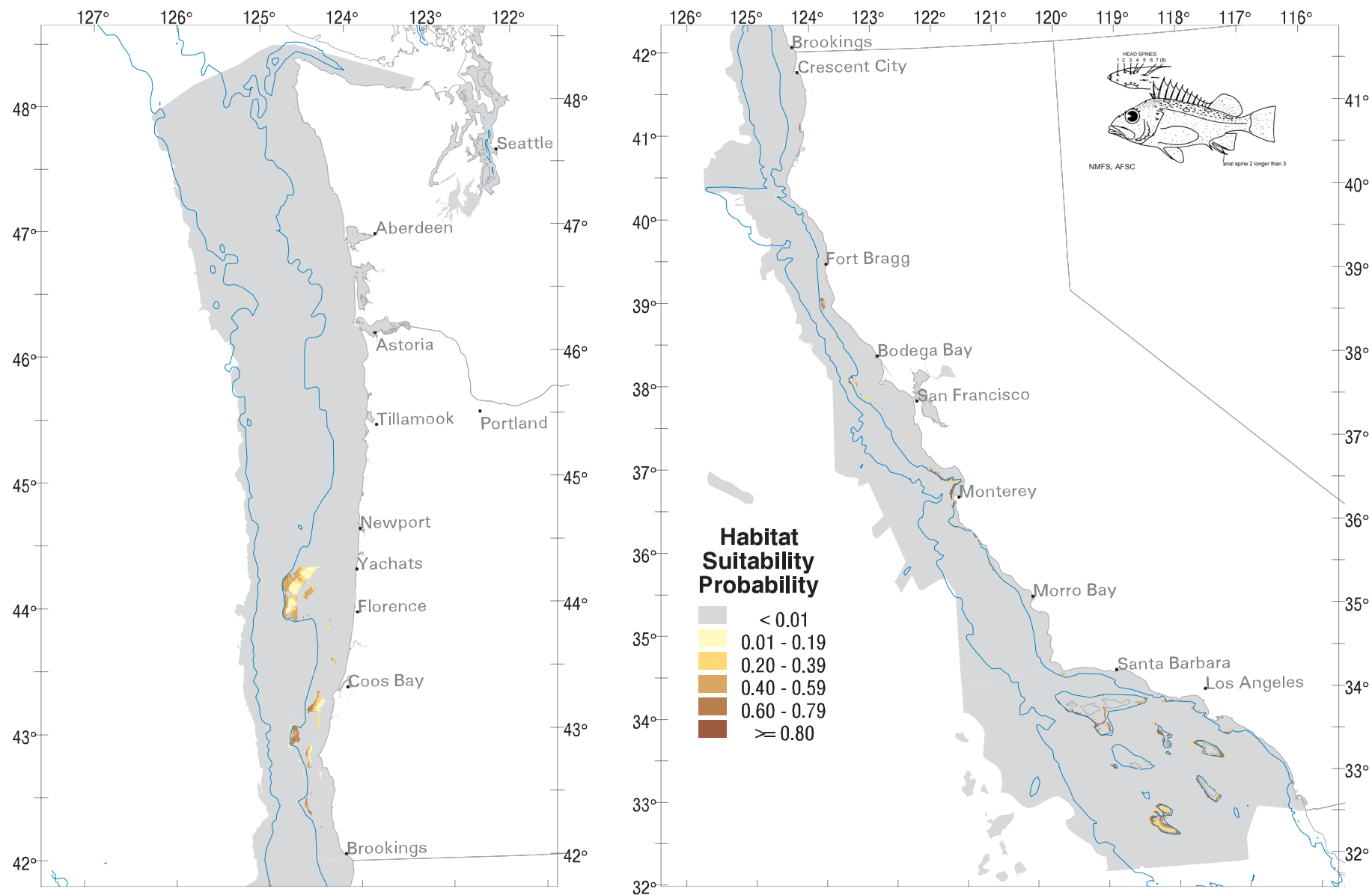|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Petrale Sole - Adult

Habitat Suitability Probability

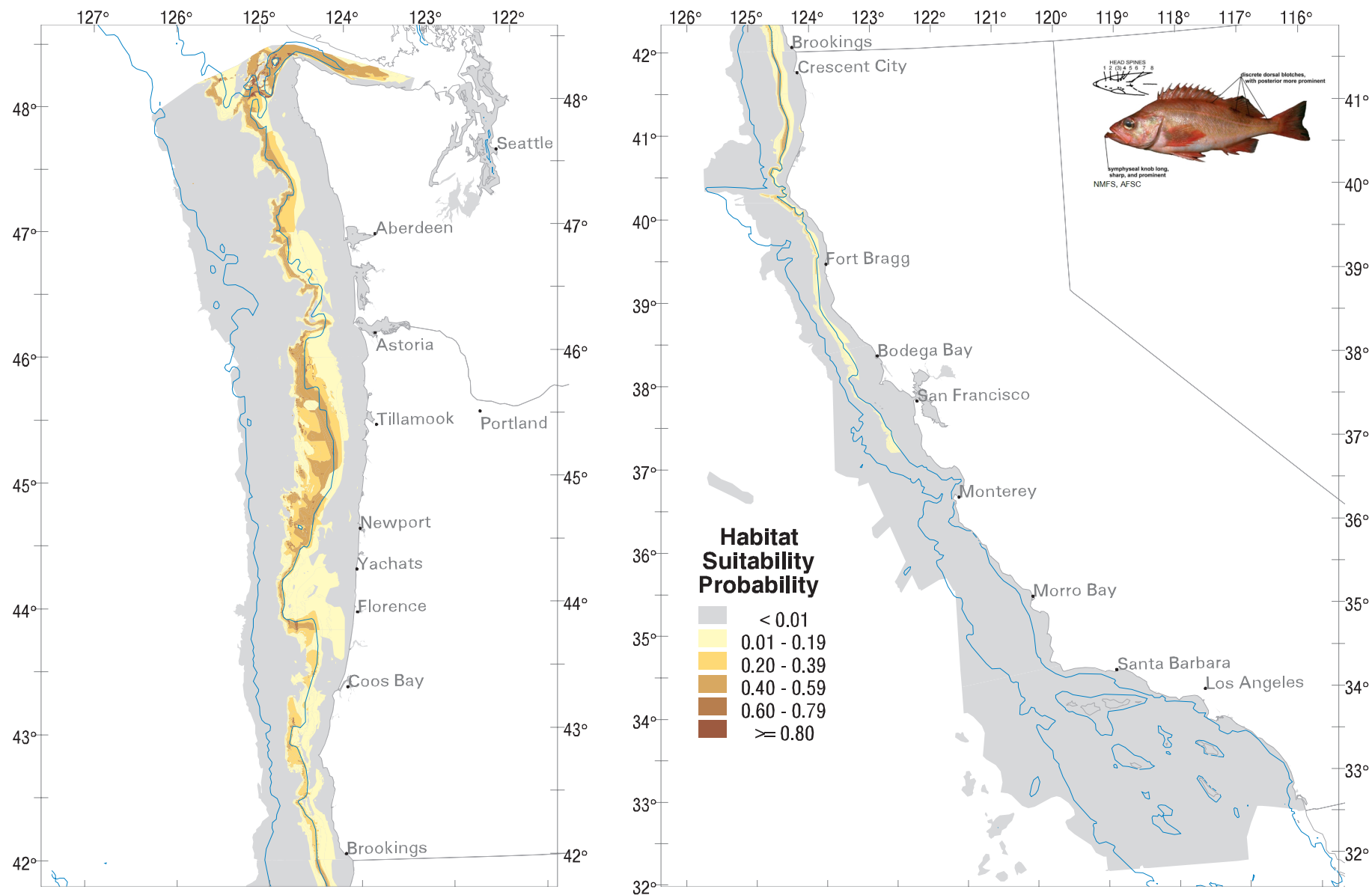|	
⬜	< 0.01
🟨	0.01 - 0.19
🟧	0.20 - 0.39
🟫	0.40 - 0.59
🟫	0.60 - 0.79
🟫	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date : October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from : Survey+

Pacific Coast Groundfish EFH FEIS

December 2005
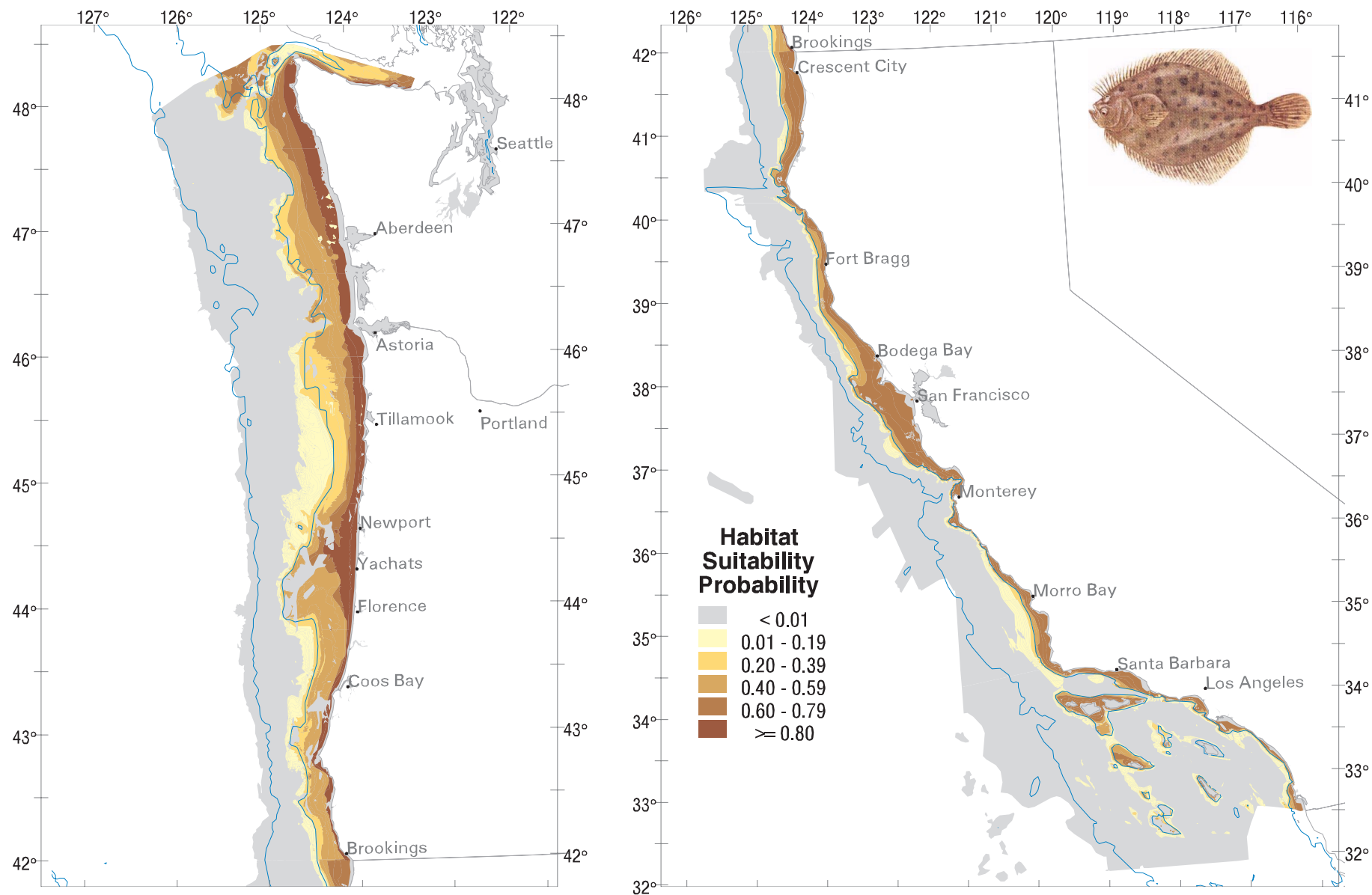
Petrale Sole - Juvenile

Habitat Suitability Probability

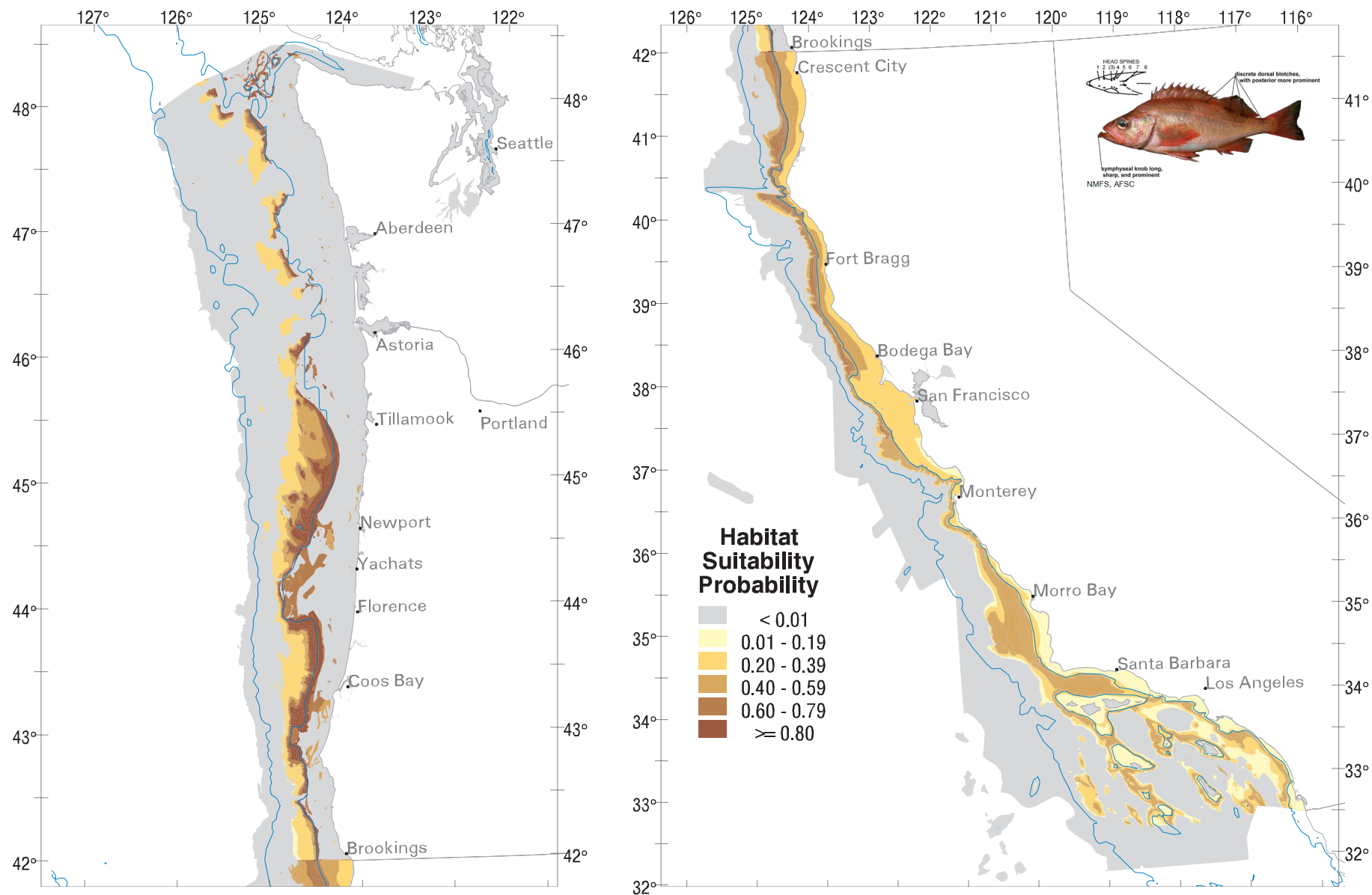|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Pink Rockfish - Adult

HEAD SPINES
1 2 3 4 5 6 7 (8)

NMFS, AFSC

anal spine 2 longer than 3

**Habitat
Suitability
Probability**

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Brookings
Crescent City
Fort Bragg
Bodega Bay
San Francisco
Monterey
Morro Bay
Santa Barbara
Los Angeles

Seattle
Aberdeen
Astoria
Portland
Tillamook
Newport
Yachats
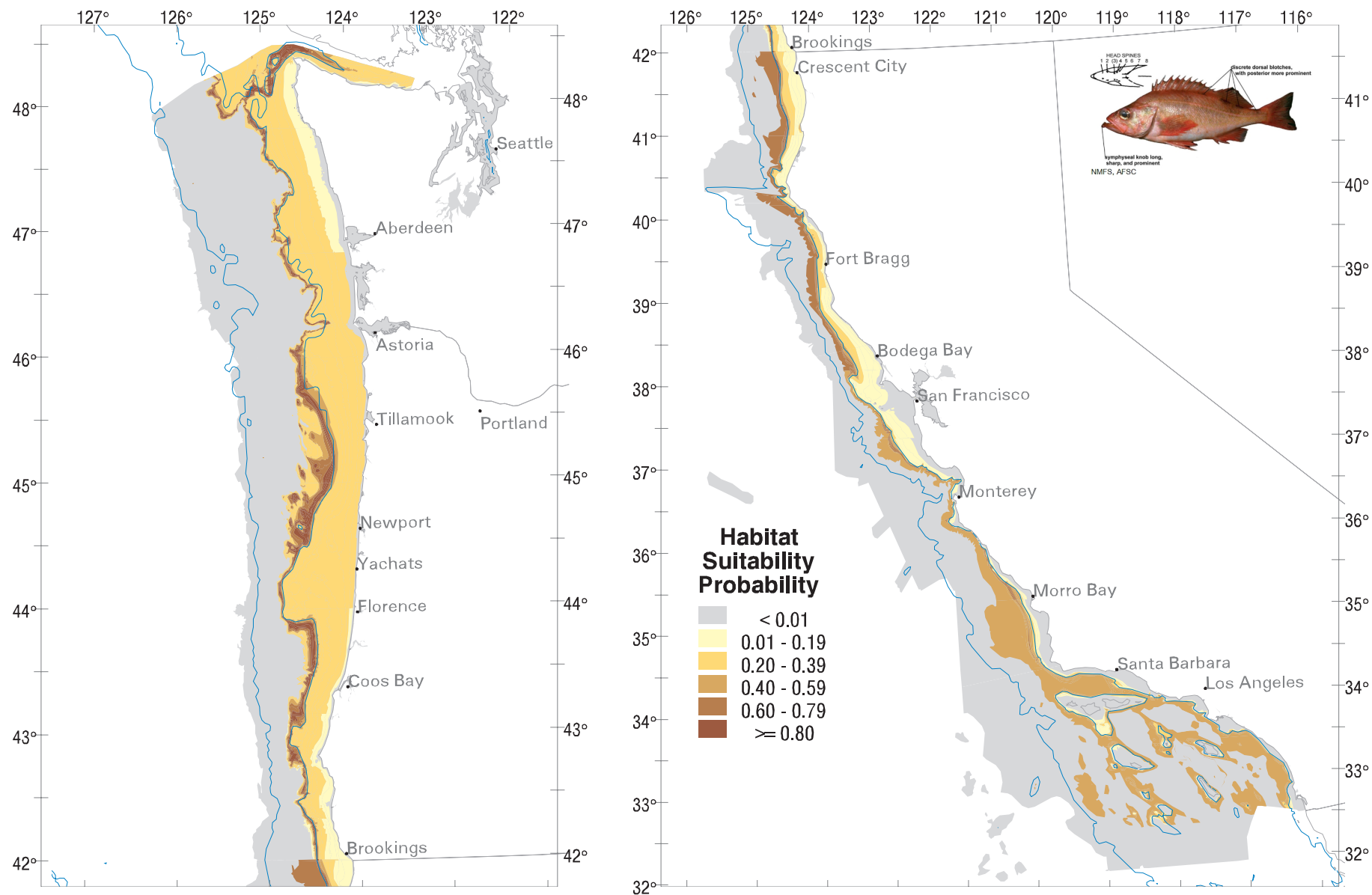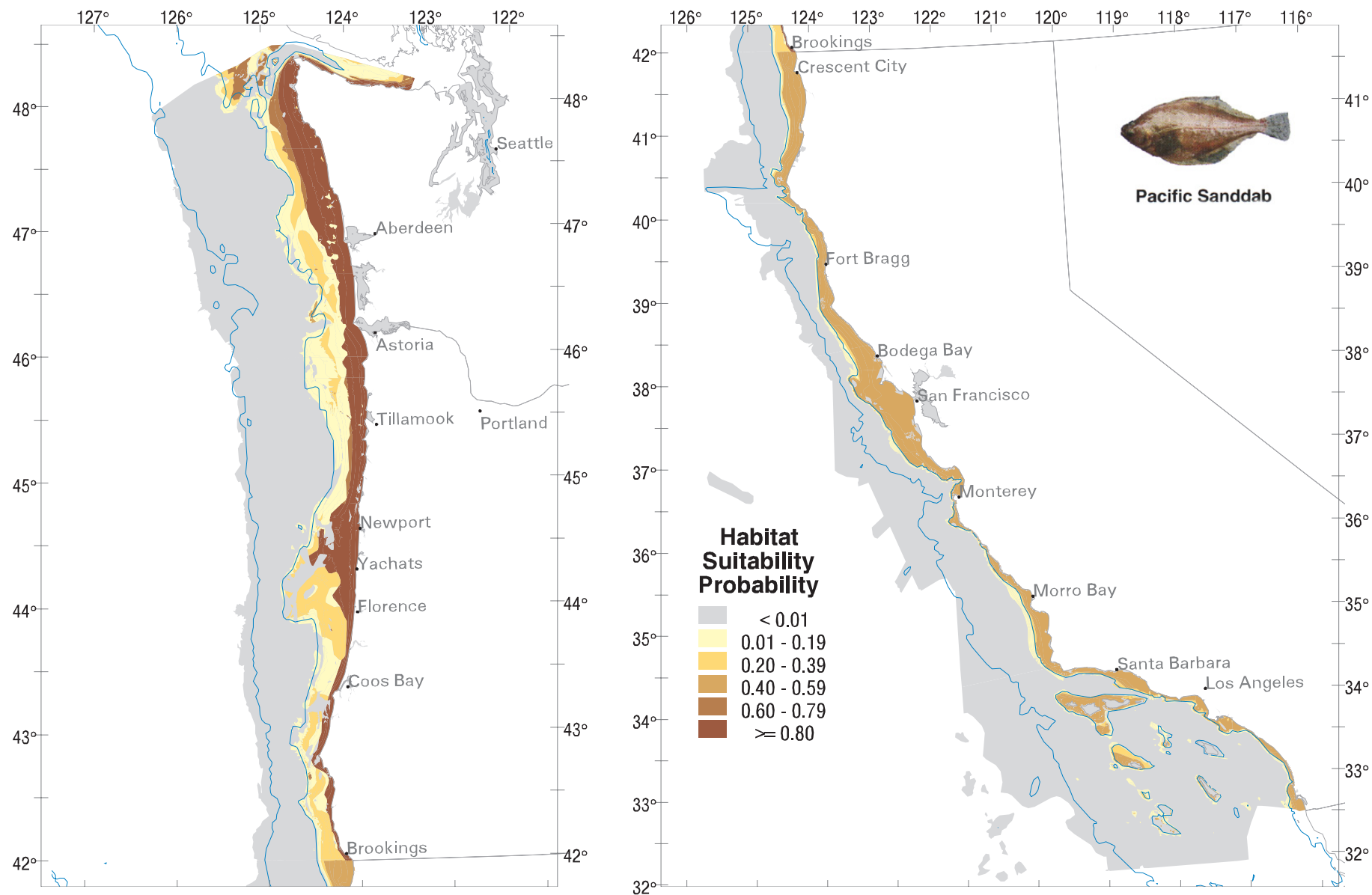Florence
Coos Bay
Brookings

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date : November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Pacific Ocean Perch - Adult

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

HEAD SPINES
1 2 (3) 4 5 6 7 8

discrete dorsal blotches,
with posterior more prominent

symphyseal knob long,
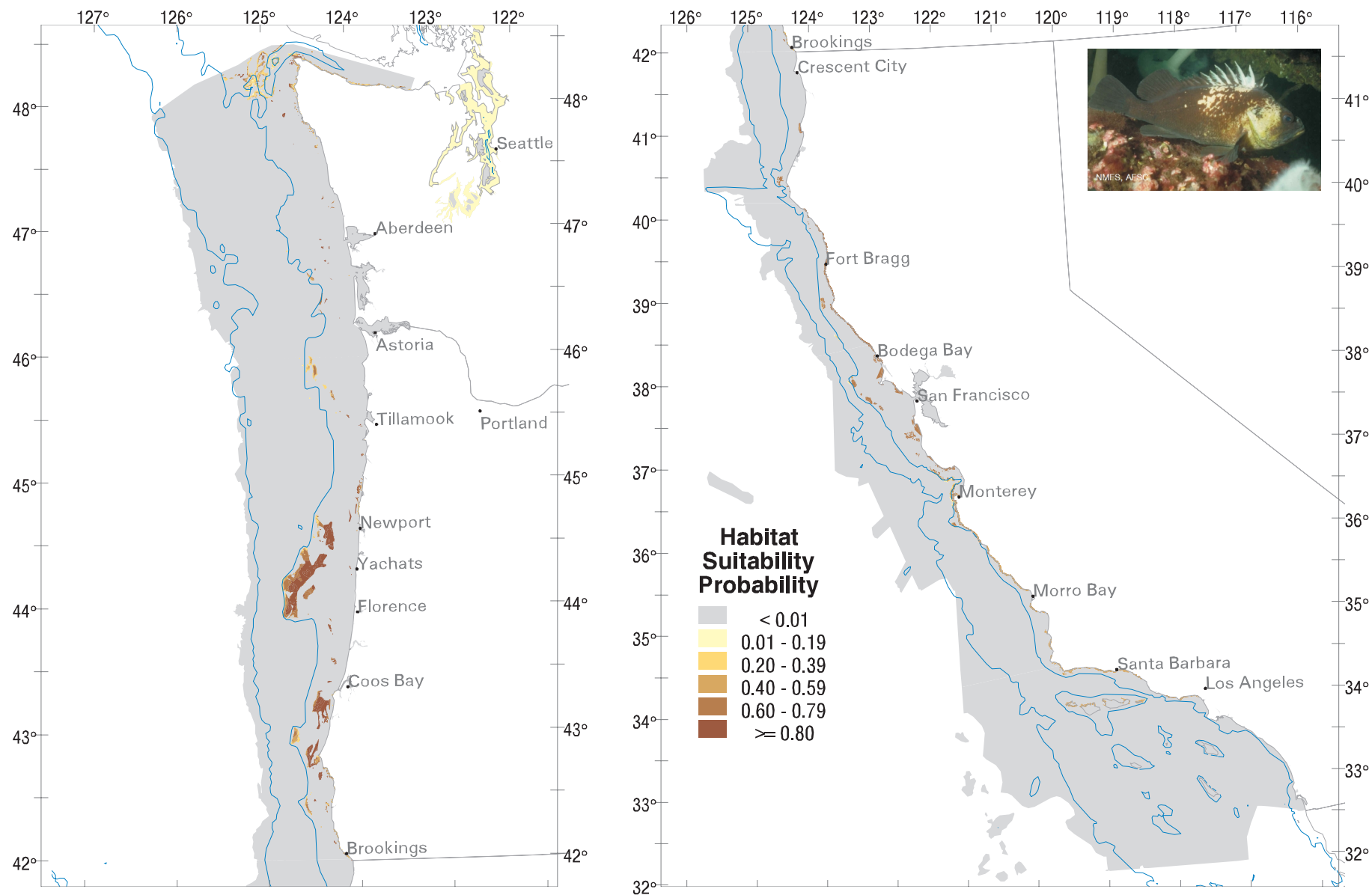sharp, and prominent
NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey

Pacific Coast Groundfish EFH FEIS

December 2005

Pacific Ocean Perch - Juvenile

Habitat Suitability Probability

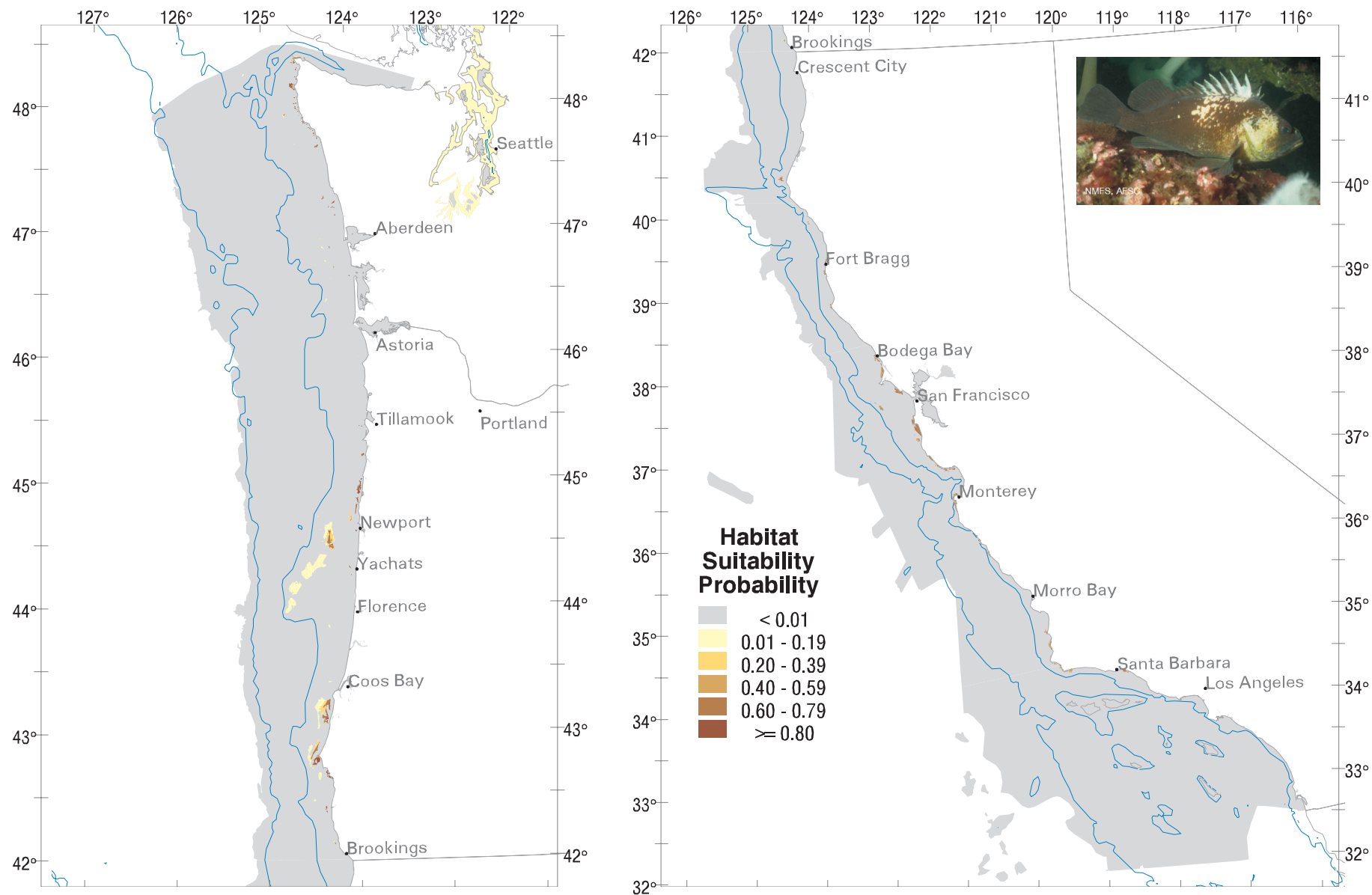|	
▢	< 0.01
▢	0.01 - 0.19
▢	0.20 - 0.39
▢	0.40 - 0.59
▢	0.60 - 0.79
▢	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Ocean Perch - Larvae

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS   December 2005

Pacific Sanddab - Adult

Pacific Sanddab

Habitat Suitability Probability

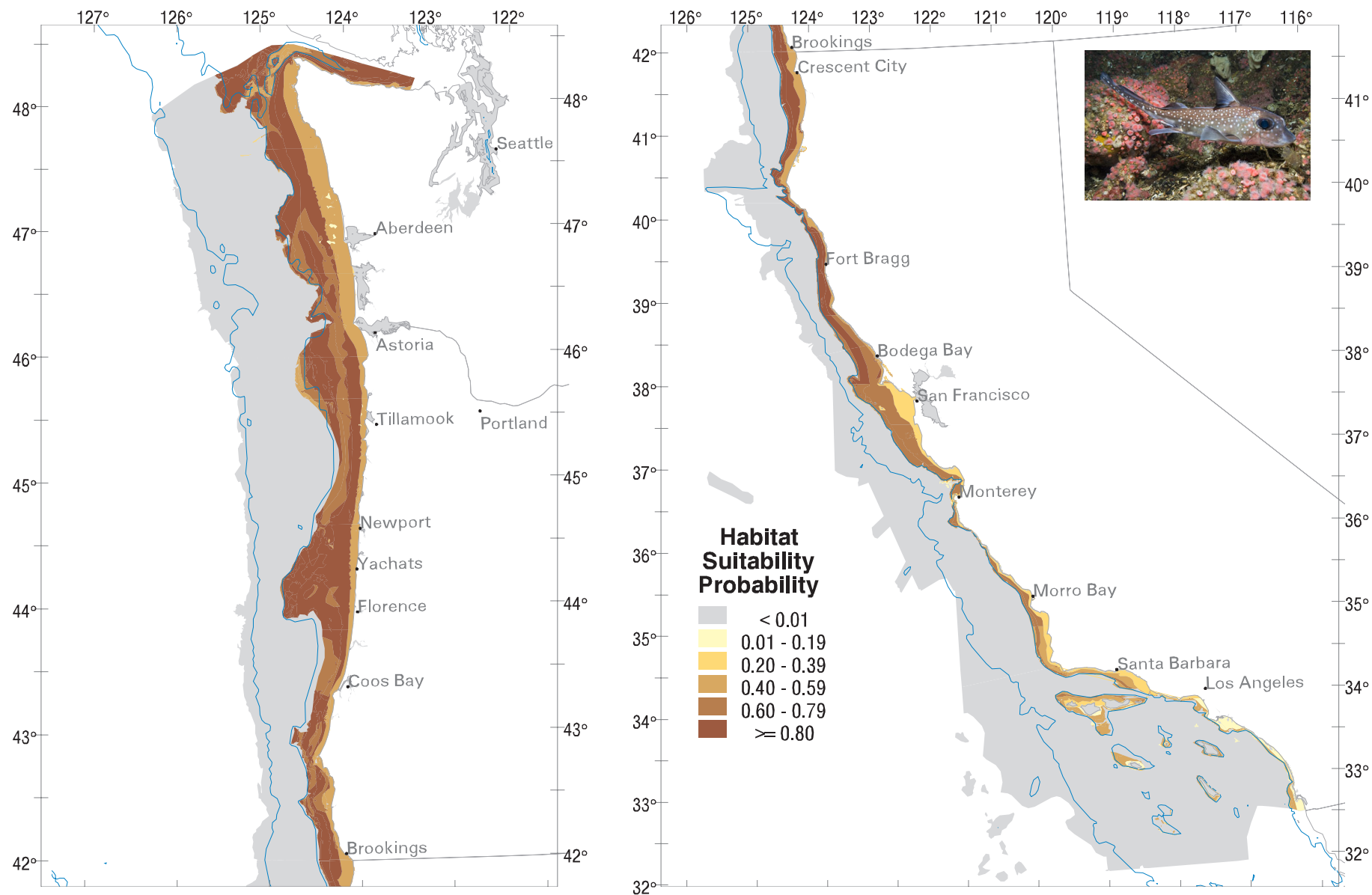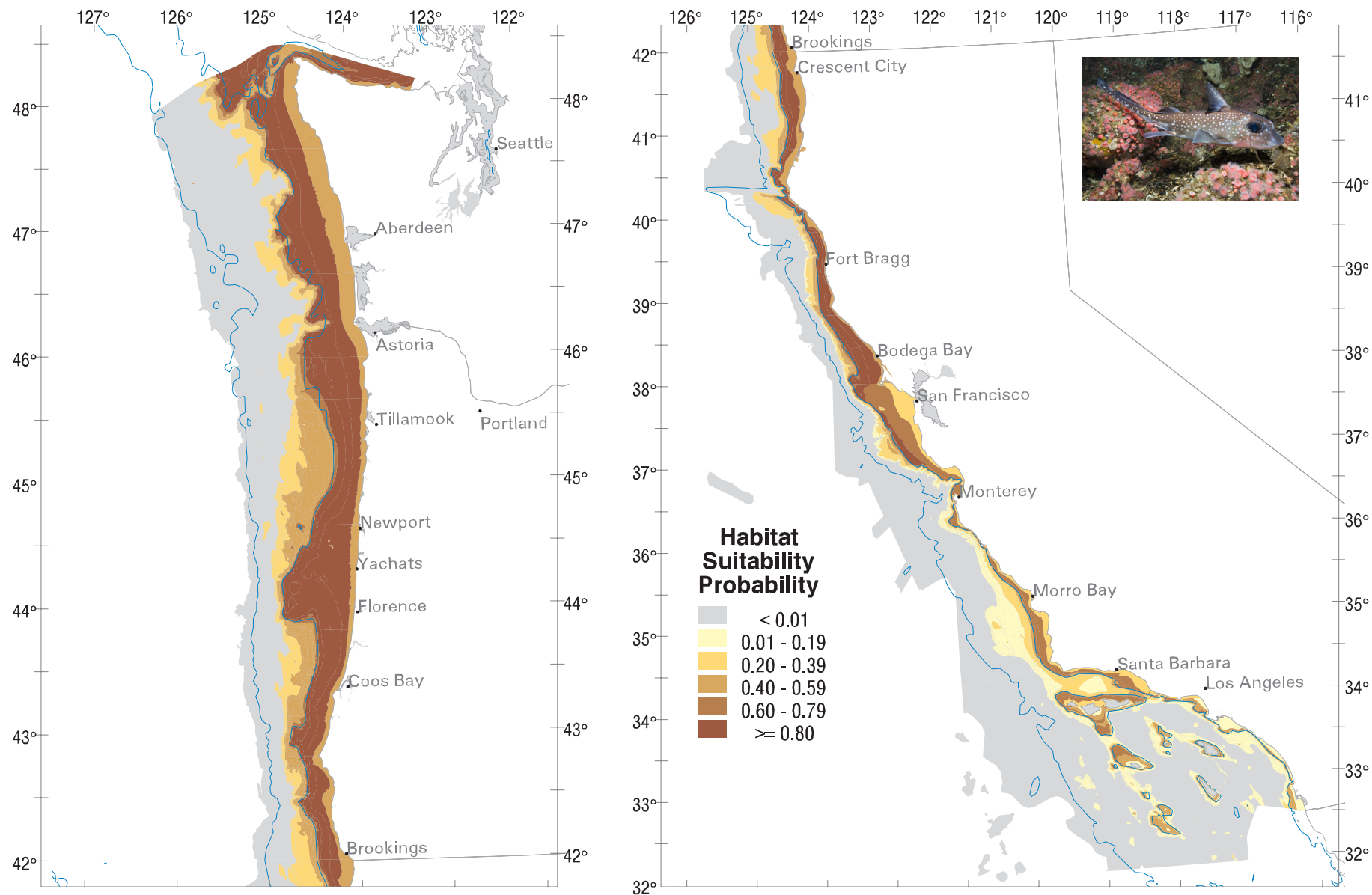|	
▨	< 0.01
▨	0.01 - 0.19
▨	0.20 - 0.39
▨	0.40 - 0.59
▨	0.60 - 0.79
▨	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey+

Pacific Coast Groundfish EFH FEIS

December 2005

Quillback Rockfish - Adult

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

127° 126° 125° 124° 123° 122°

48° 47° 46° 45° 44° 43° 42°

Seattle
Aberdeen
Astoria
Portland
Tillamook
Newport
Yachats
Florence
Coos Bay
Brookings

126° 125° 124° 123° 122° 121° 120° 119° 118° 117° 116°

42° 41° 40° 39° 38° 37° 36° 35° 34° 33° 32°

Brookings
Crescent City
Fort Bragg
Bodega Bay
San Francisco
Monterey
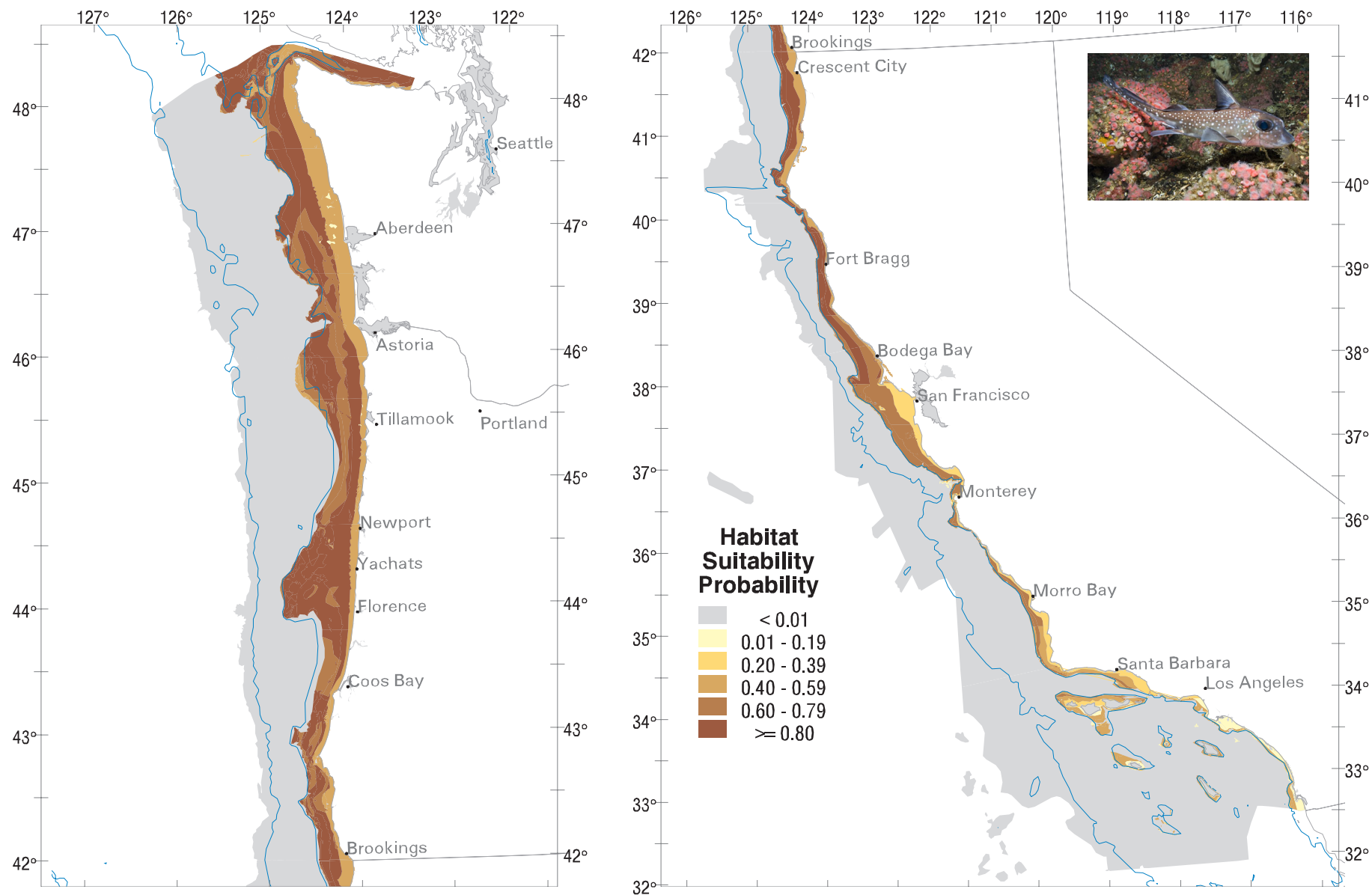Morro Bay
Santa Barbara
Los Angeles

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Quillback Rockfish - Juvenile

NMFS, AFSC

**Habitat
Suitability
Probability**

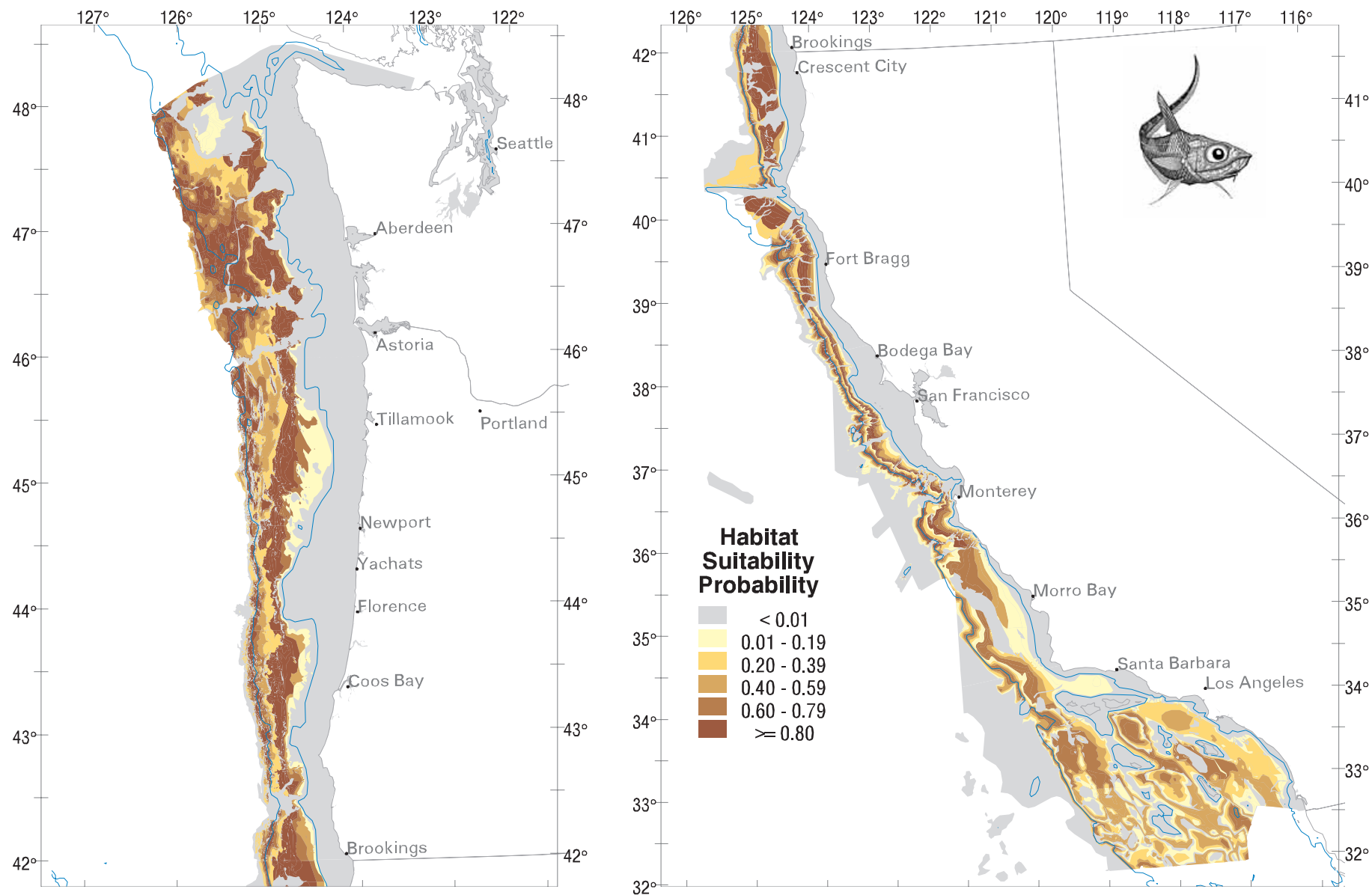|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Ratfish - Adult

Habitat Suitability Probability

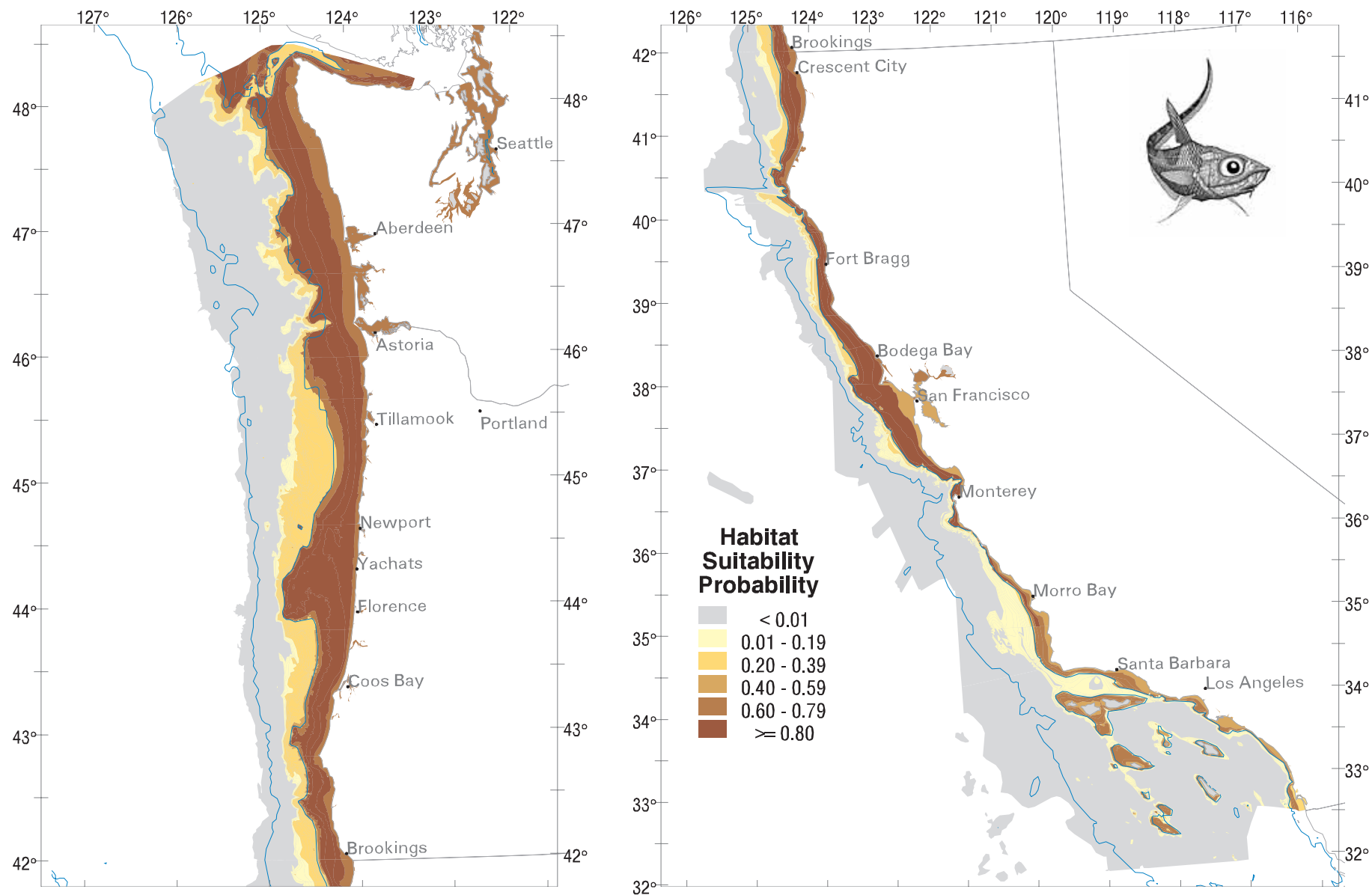|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Ratfish - Eggs

Habitat Suitability Probability

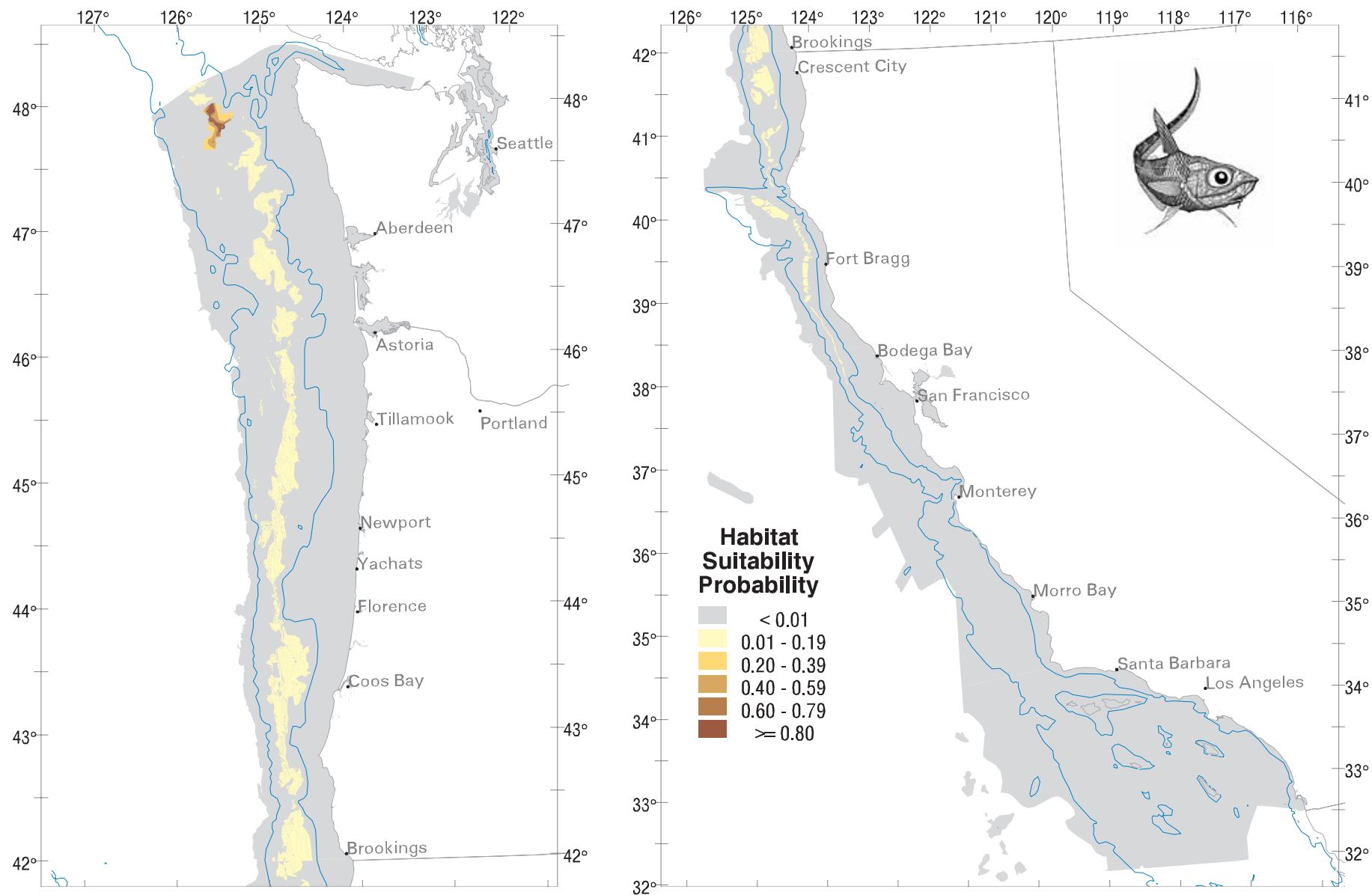|	
☐	< 0.01
☐	0.01 - 0.19
☐	0.20 - 0.39
☐	0.40 - 0.59
☐	0.60 - 0.79
☐	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Ratfish - Juvenile

Habitat Suitability Probability

- ☐ < 0.01
- ☐ 0.01 - 0.19
- ☐ 0.20 - 0.39
- ☐ 0.40 - 0.59
- ☐ 0.60 - 0.79
- ☐ >= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Rattail - Adult

Habitat Suitability Probability

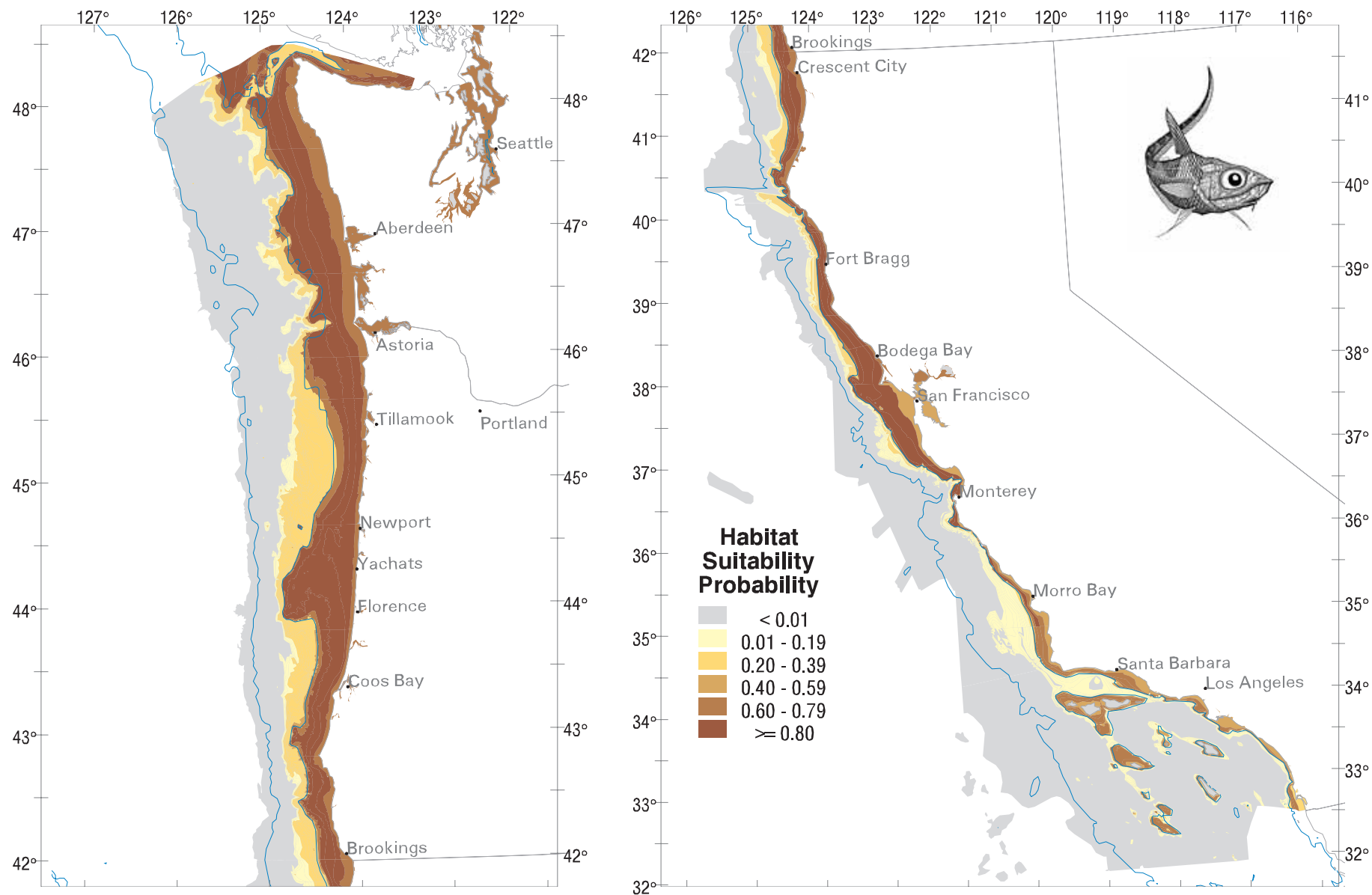|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date : November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: 'HUD & Survey'

Pacific Rattail - Eggs

Habitat Suitability Probability

- < 0.01
- 0.01 - 0.19
- 0.20 - 0.39
- 0.40 - 0.59
- 0.60 - 0.79
- >= 0.80

Left map labels: Seattle, Aberdeen, Astoria, Portland, Tillamook, Newport, Yachats, Florence, Coos Bay, Brookings

Right map labels: Brookings, Crescent City, Fort Bragg, Bodega Bay, San Francisco, Monterey, Morro Bay, Santa Barbara, Los Angeles
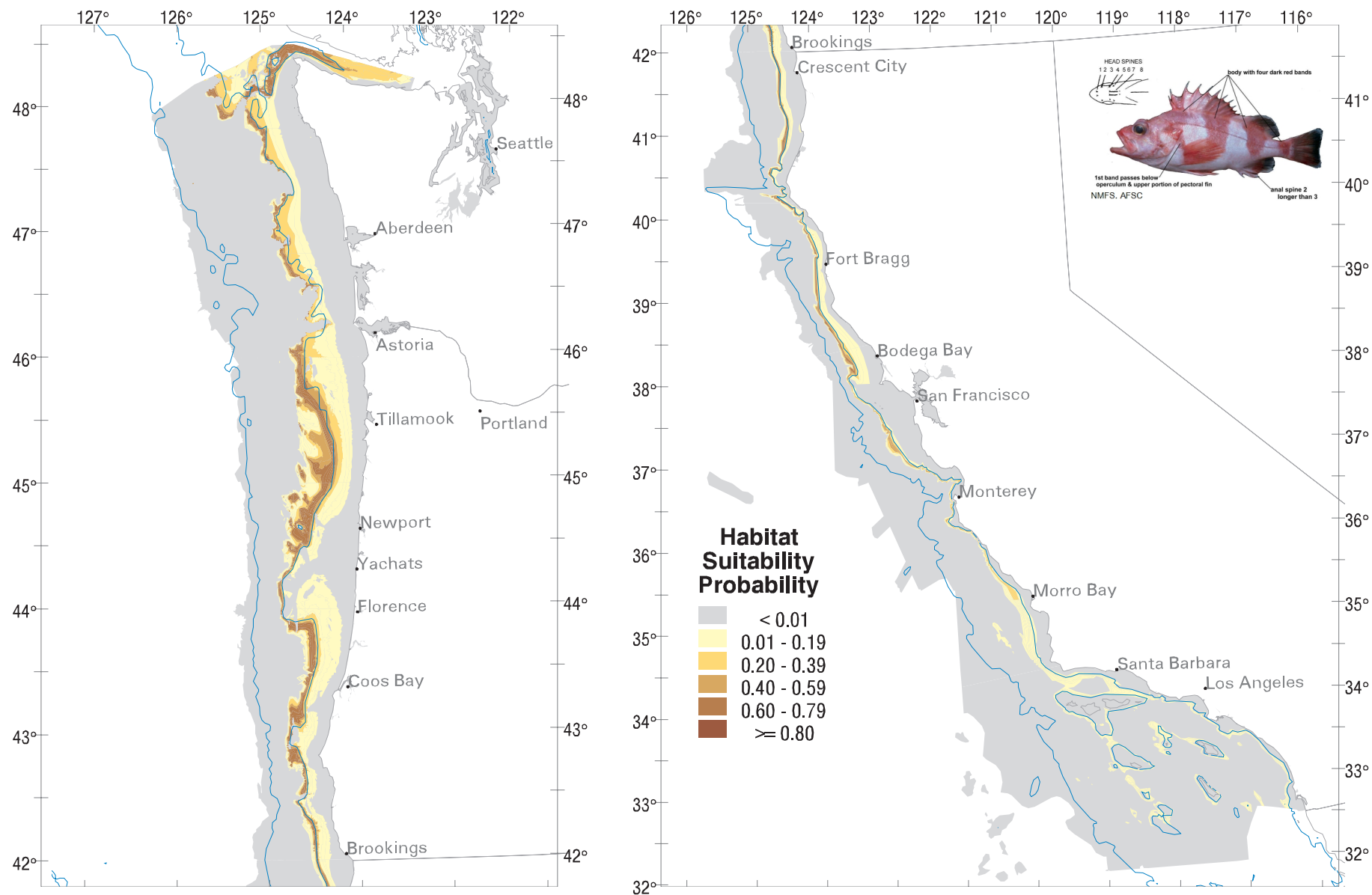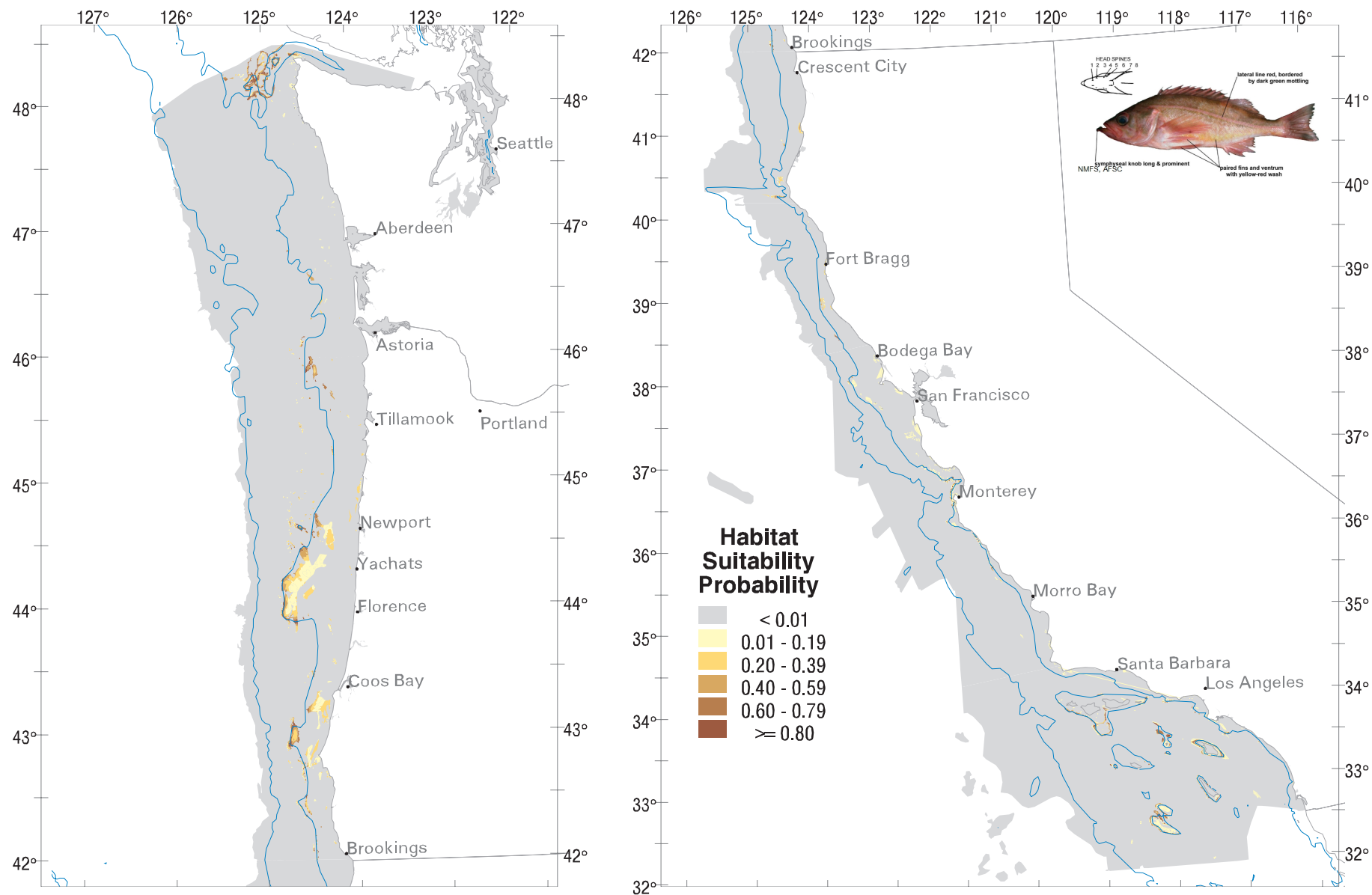
Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Pacific Rattail - Juvenile

Habitat Suitability Probability

▨	< 0.01
▨	0.01 - 0.19
▨	0.20 - 0.39
▨	0.40 - 0.59
▨	0.60 - 0.79
▨	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date : November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from : HUD

Pacific Rattail - Larvae

Habitat Suitability Probability

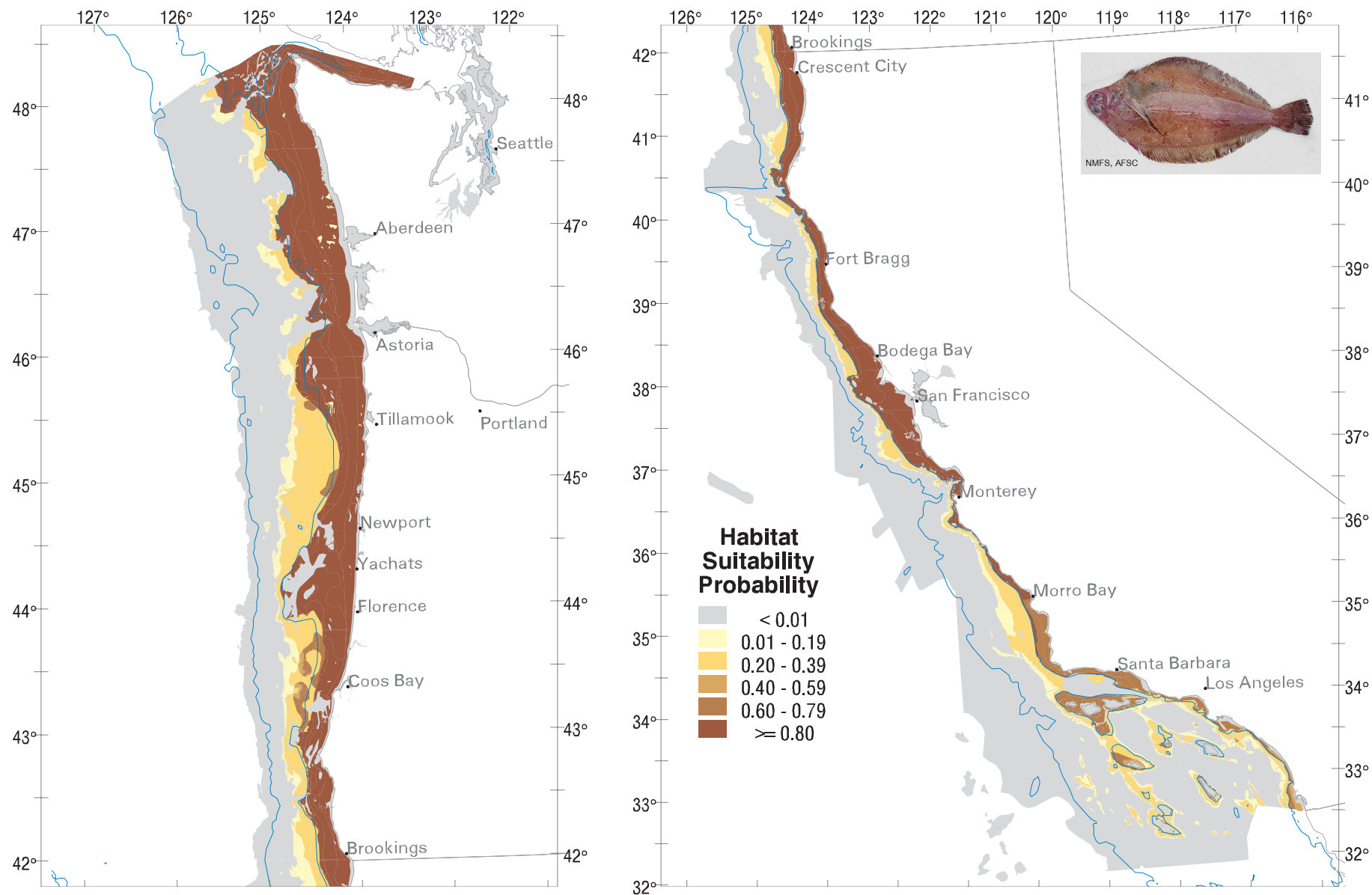|	
⬜	< 0.01
🟨	0.01 - 0.19
🟧	0.20 - 0.39
🟧	0.40 - 0.59
🟫	0.60 - 0.79
🟫	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Redbanded Rockfish - Adult

**Habitat
Suitability
Probability**

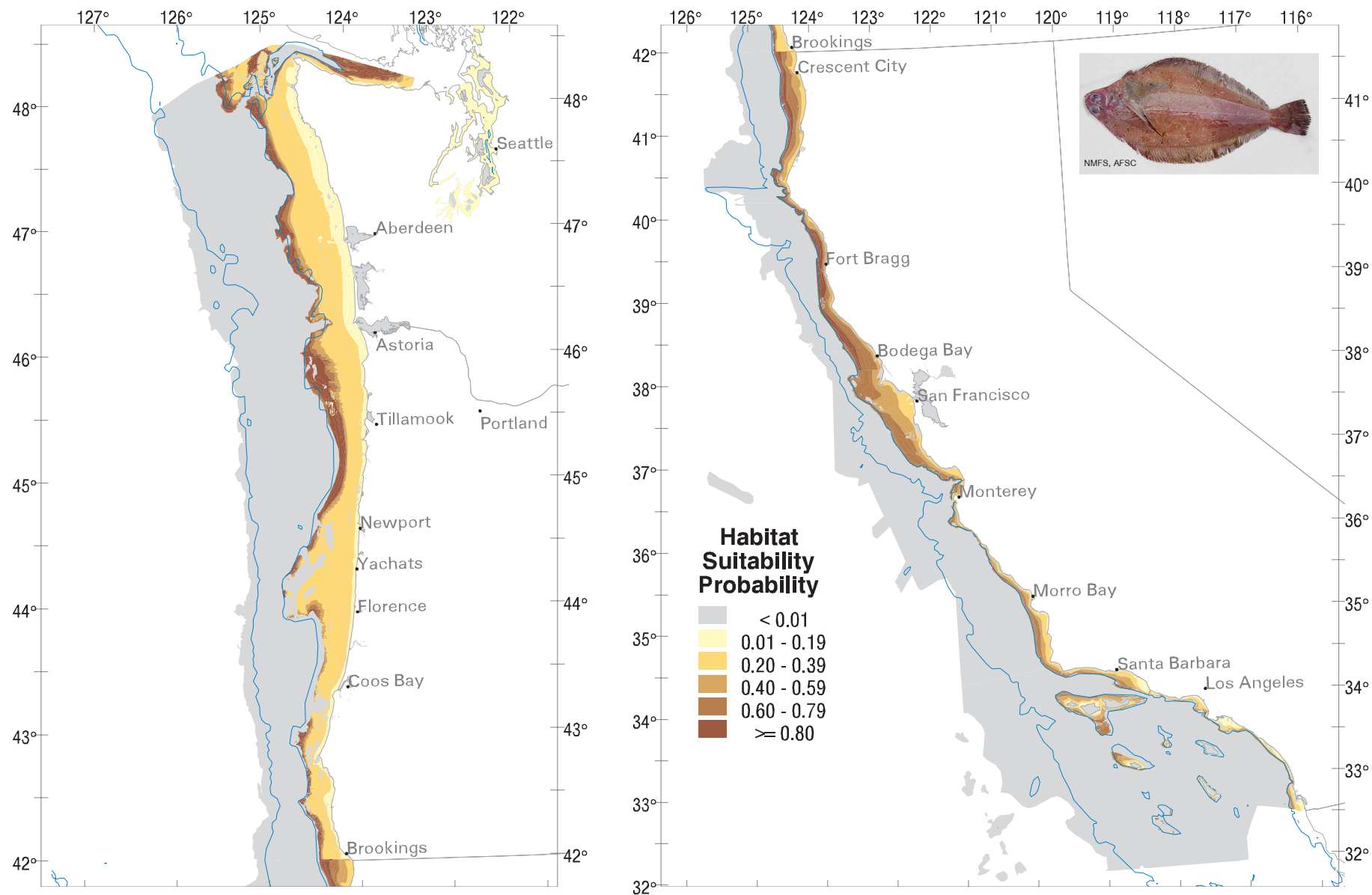|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey

Pacific Coast Groundfish EFH FEIS

December 2005

Redstripe Rockfish - Adult

Habitat Suitability Probability

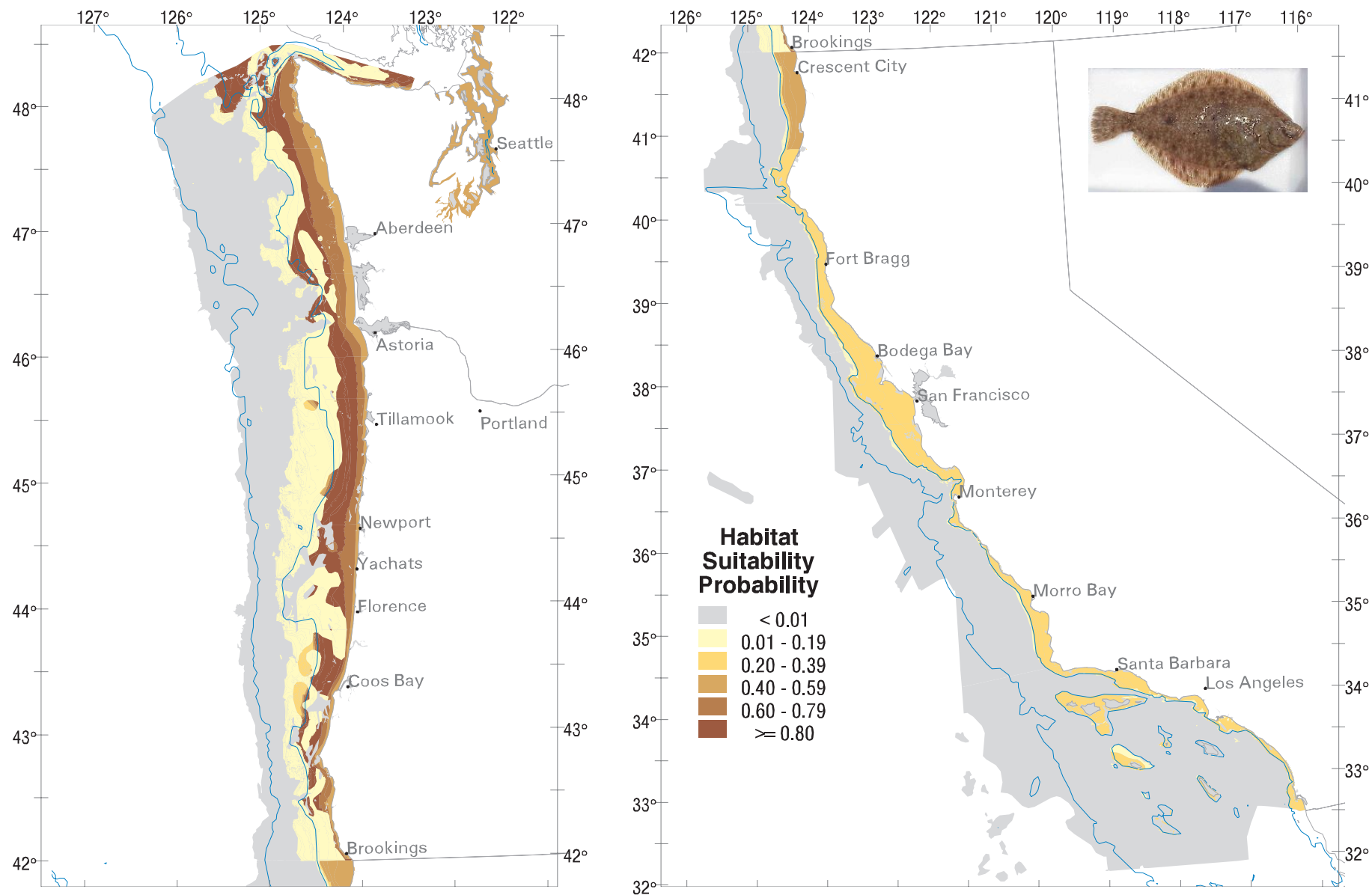|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Rex Sole - Adult

NMFS, AFSC

Habitat Suitability Probability

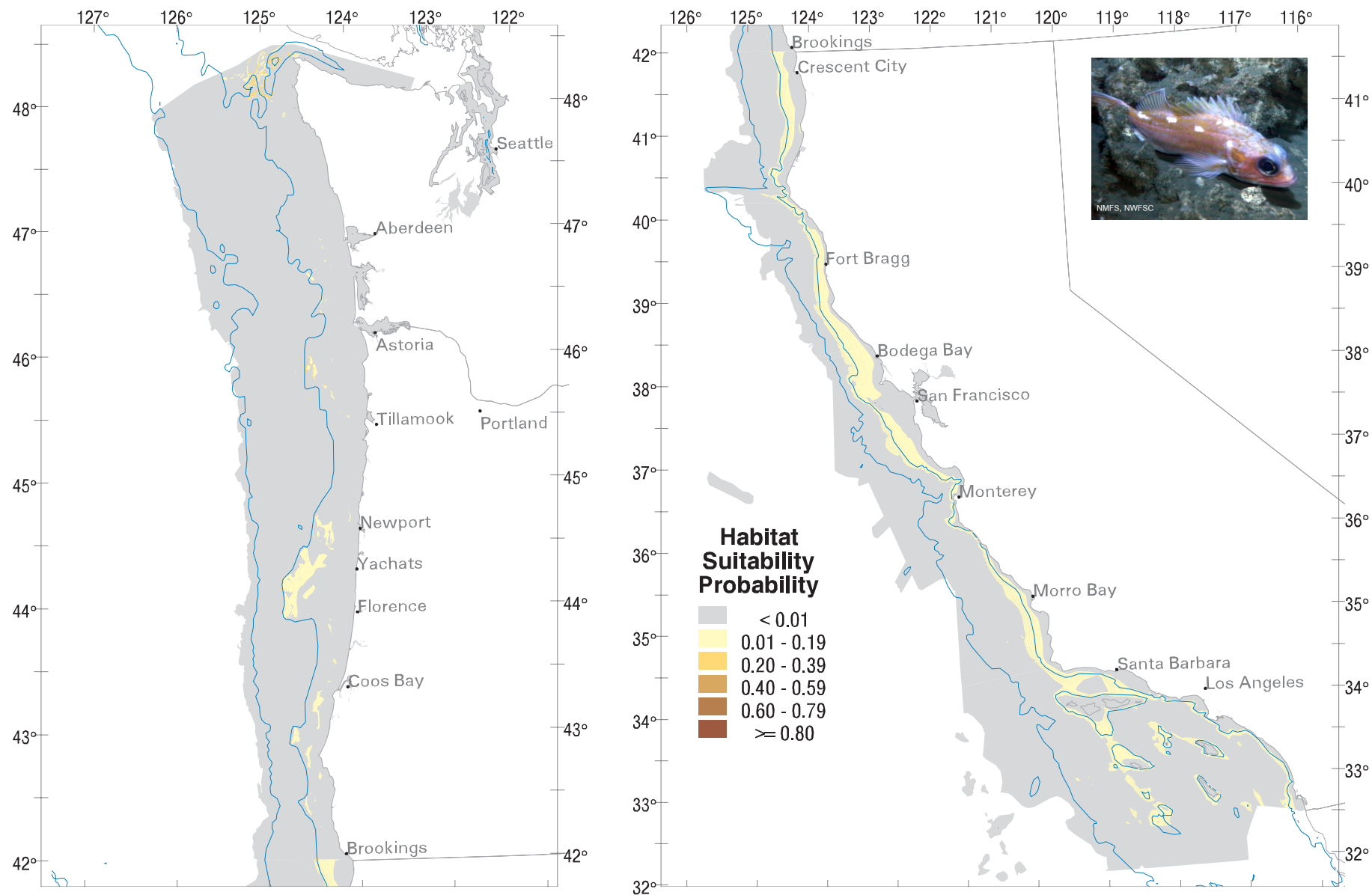|	
▨	< 0.01
▨	0.01 - 0.19
▨	0.20 - 0.39
▨	0.40 - 0.59
▨	0.60 - 0.79
▨	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey

Rex Sole - Juvenile

NMFS, AFSC

Habitat Suitability Probability

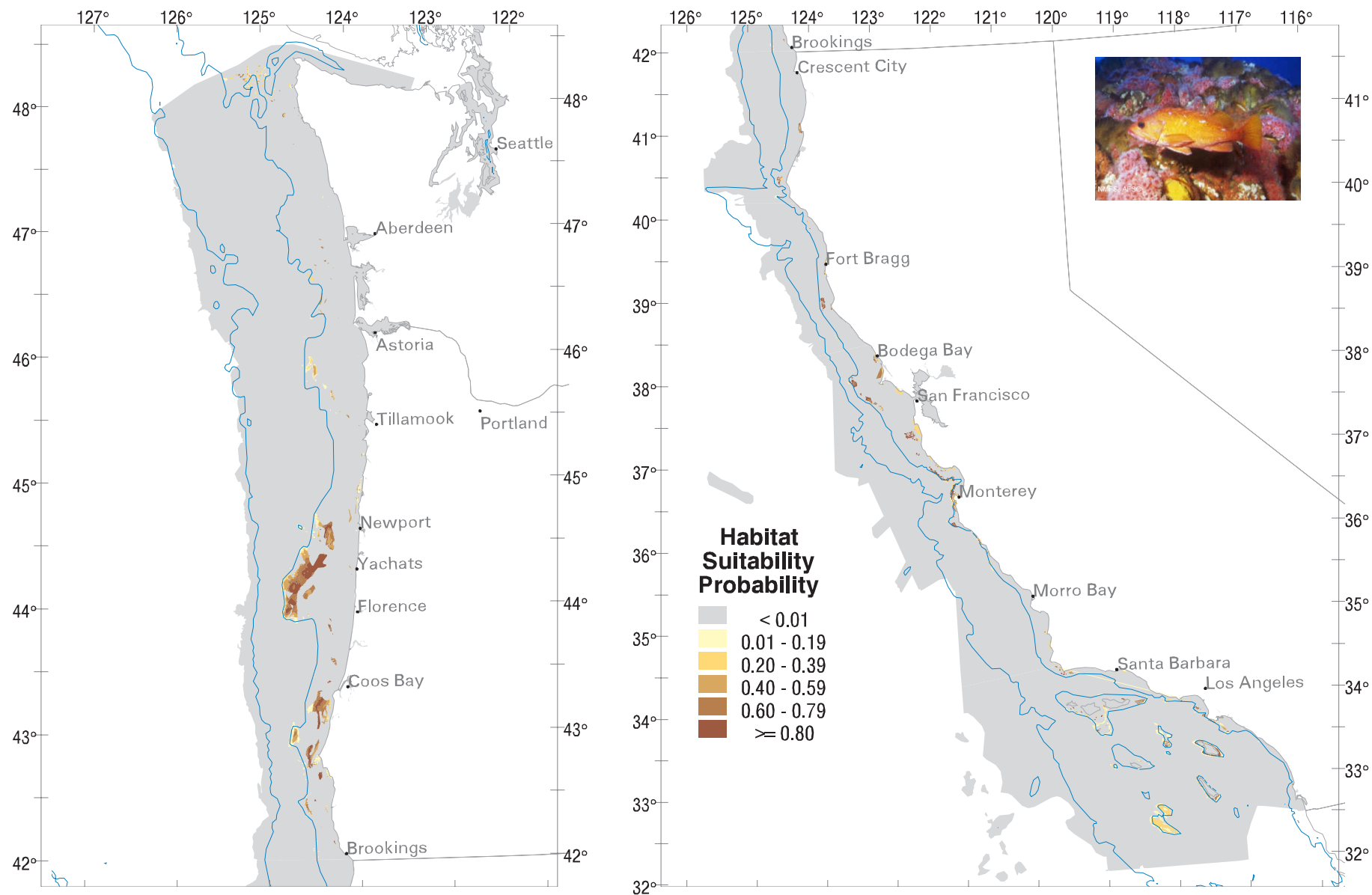|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Rock Sole - Adult

Habitat Suitability Probability

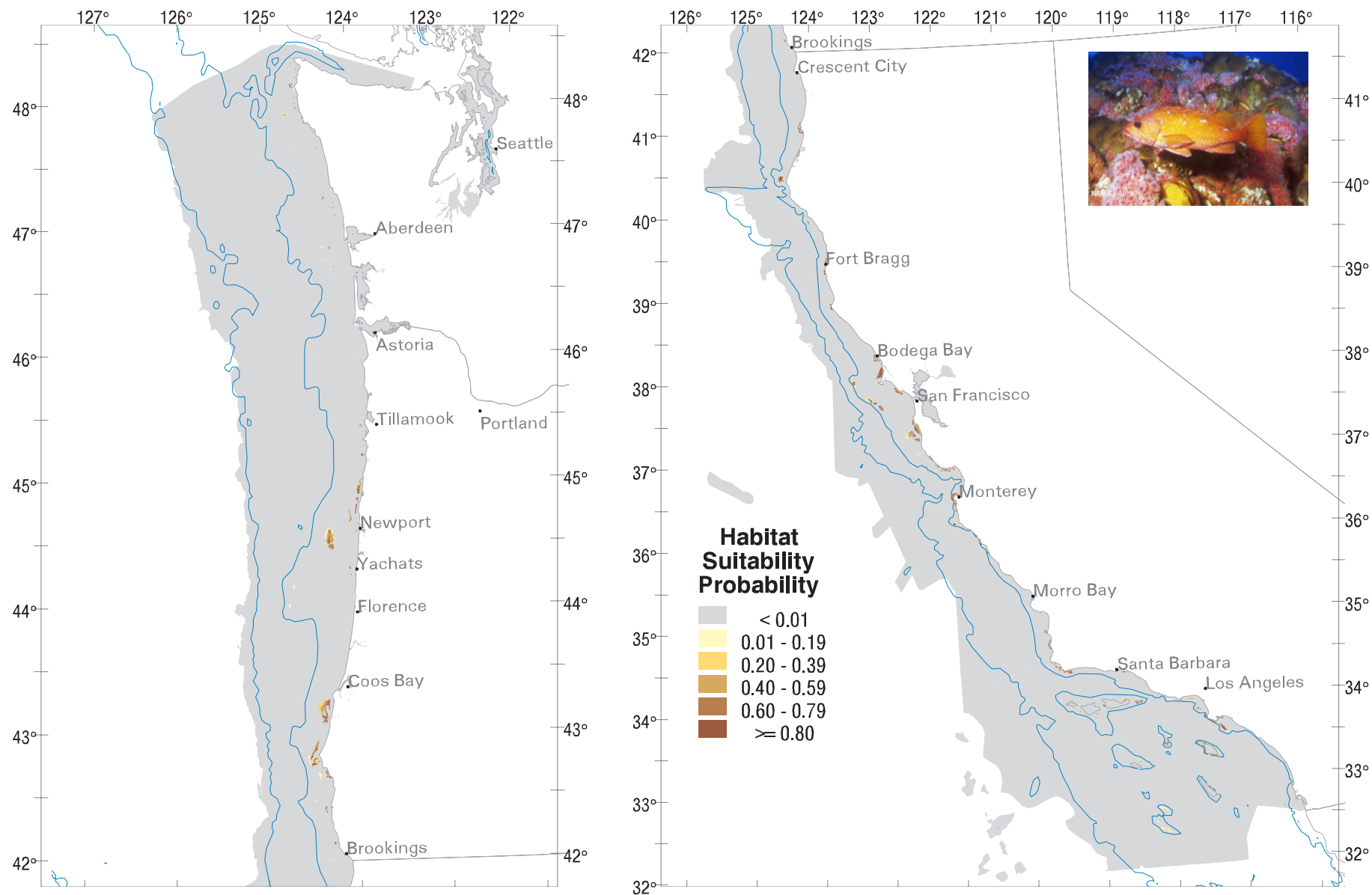|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Rosethorn Rockfish - Adult

Habitat Suitability Probability

▩	< 0.01
▩	0.01 - 0.19
▩	0.20 - 0.39
▩	0.40 - 0.59
▩	0.60 - 0.79
▩	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey

Rosy Rockfish - Adult

Habitat Suitability Probability

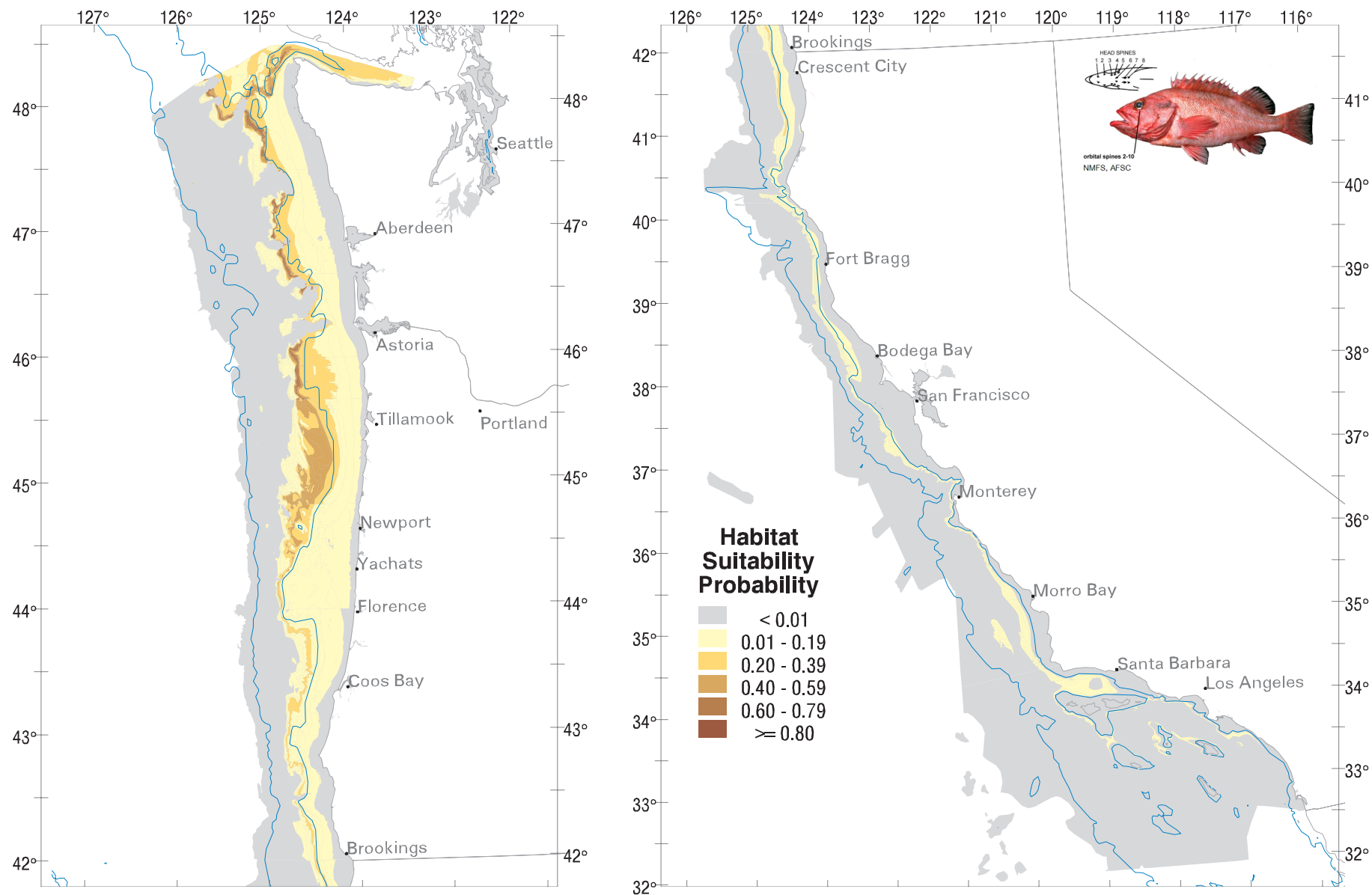|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Rosy Rockfish - Juvenile

Habitat Suitability Probability

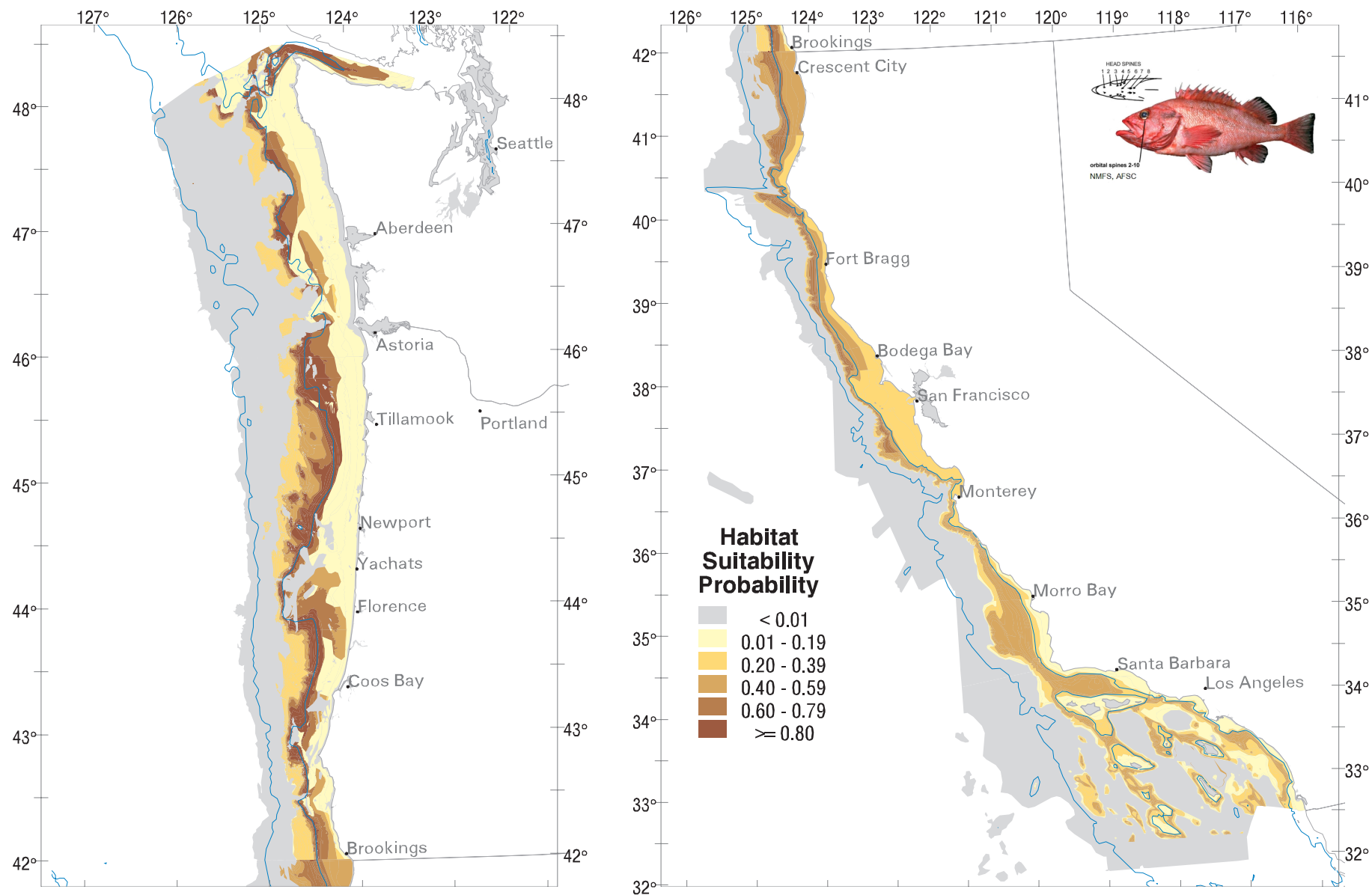|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Rougheye Rockfish - Adult

Habitat Suitability Probability

- < 0.01
- 0.01 - 0.19
- 0.20 - 0.39
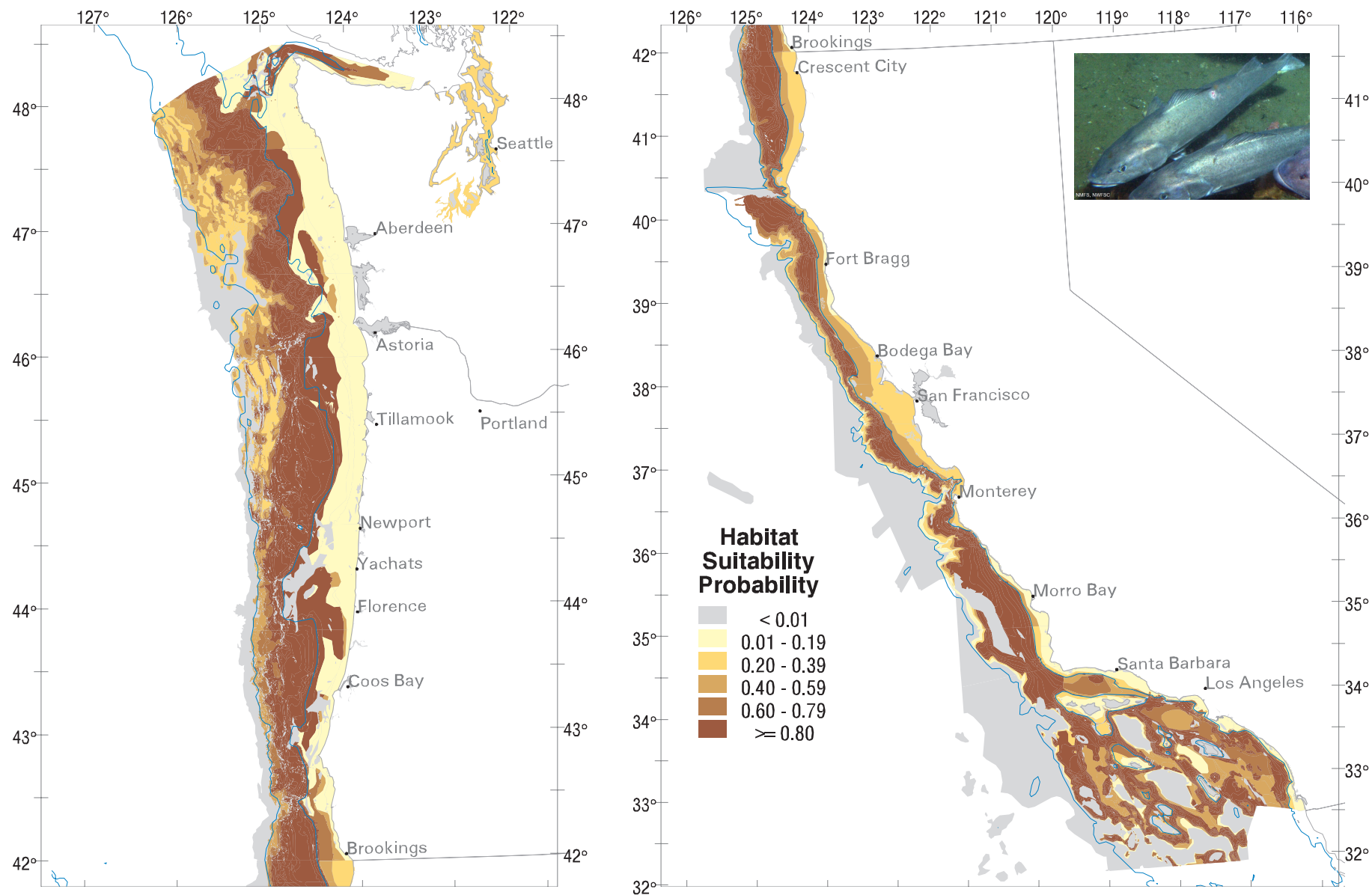- 0.40 - 0.59
- 0.60 - 0.79
- >= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey

Rougheye Rockfish - Juvenile

Habitat Suitability Probability

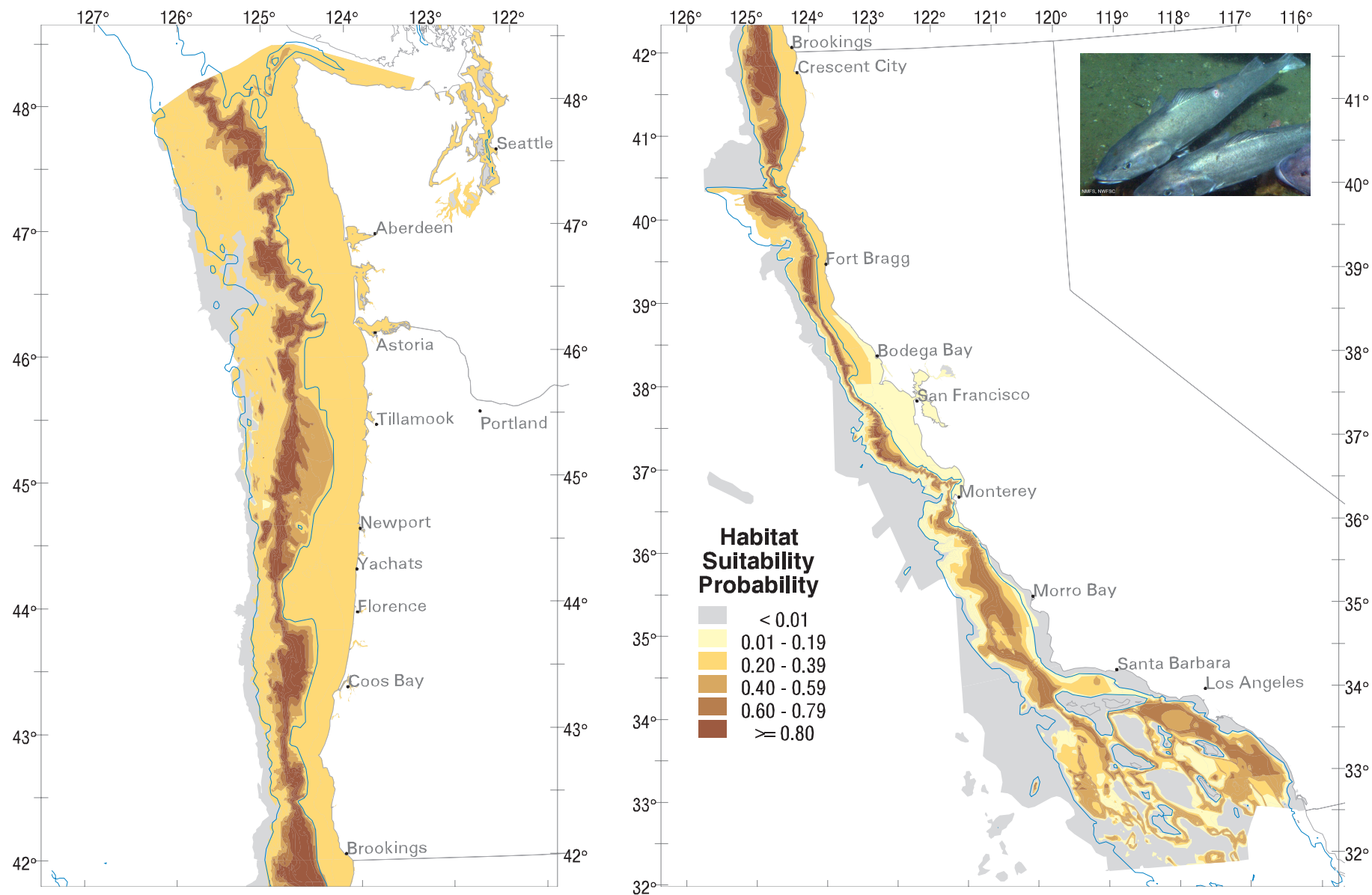|	
▨	< 0.01
▨	0.01 - 0.19
▨	0.20 - 0.39
▨	0.40 - 0.59
▨	0.60 - 0.79
▨	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

Sablefish - Adult

Habitat Suitability Probability

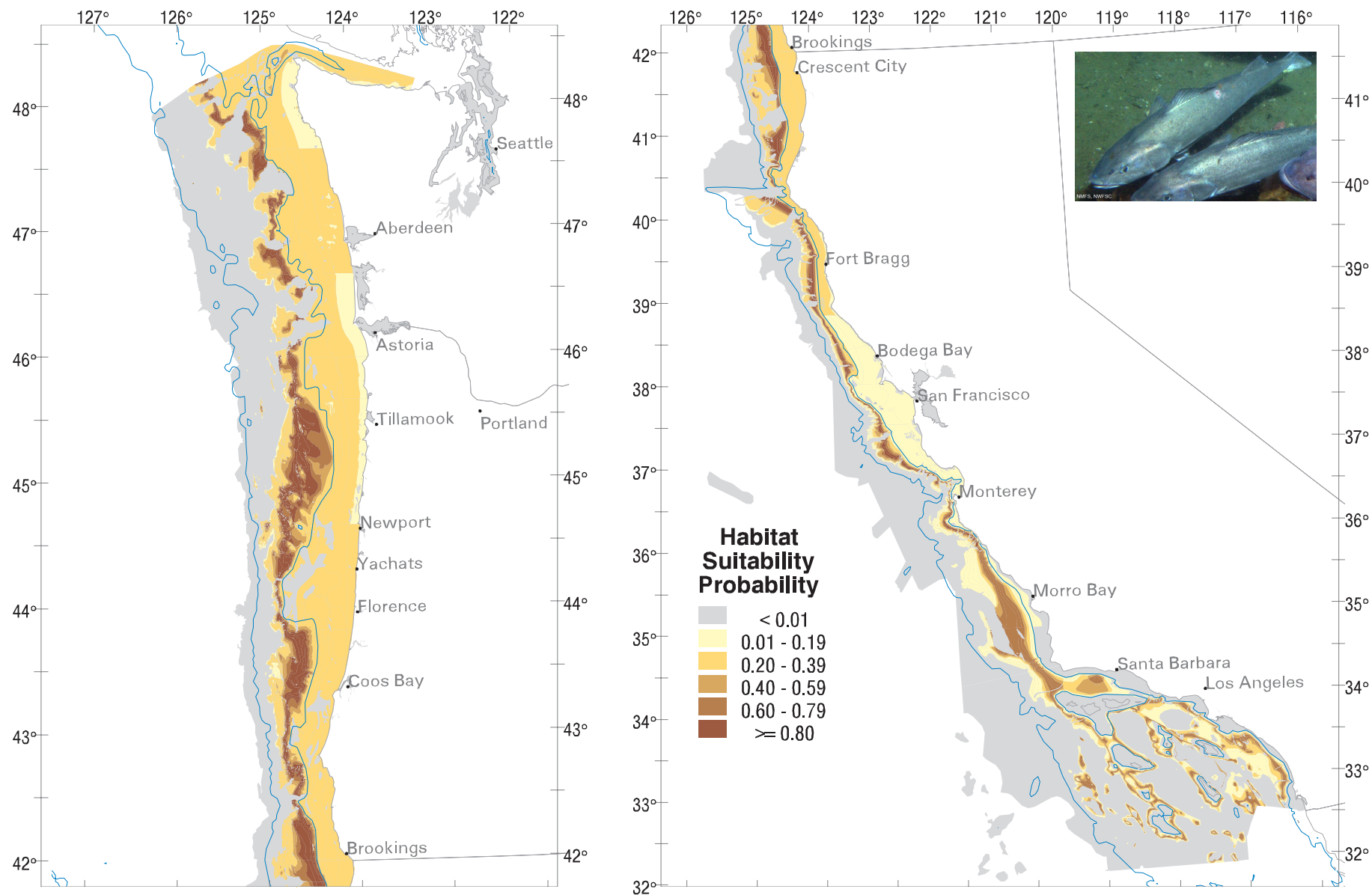|	
![grey]	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date : November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: 'HUD & Survey'

Pacific Coast Groundfish EFH FEIS

December 2005

Sablefish - Eggs

**Habitat
Suitability
Probability**

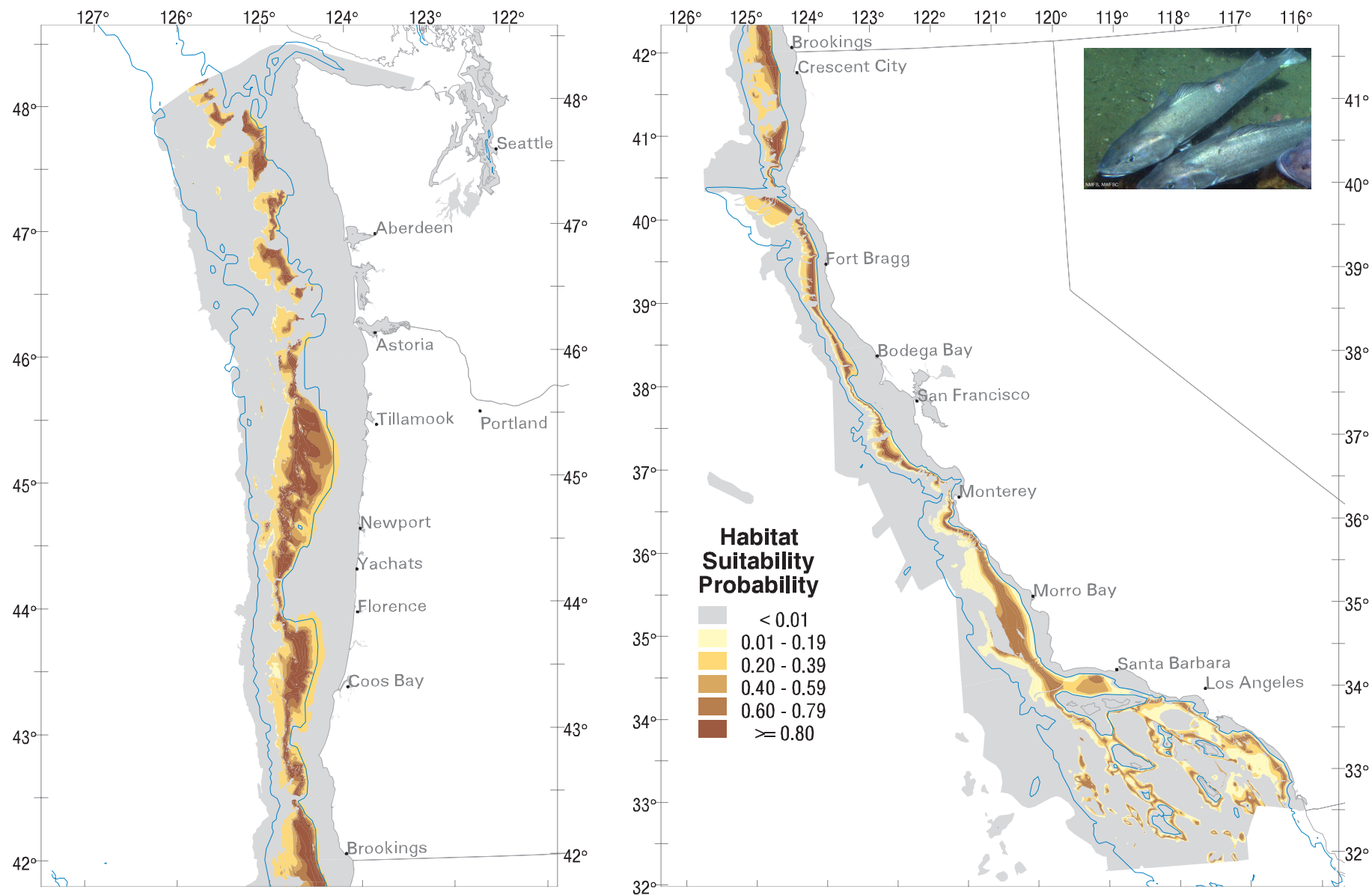|	
⬜	< 0.01
🟨	0.01 - 0.19
🟧	0.20 - 0.39
🟫	0.40 - 0.59
🟤	0.60 - 0.79
🟥	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Sablefish - Juvenile

Habitat Suitability Probability

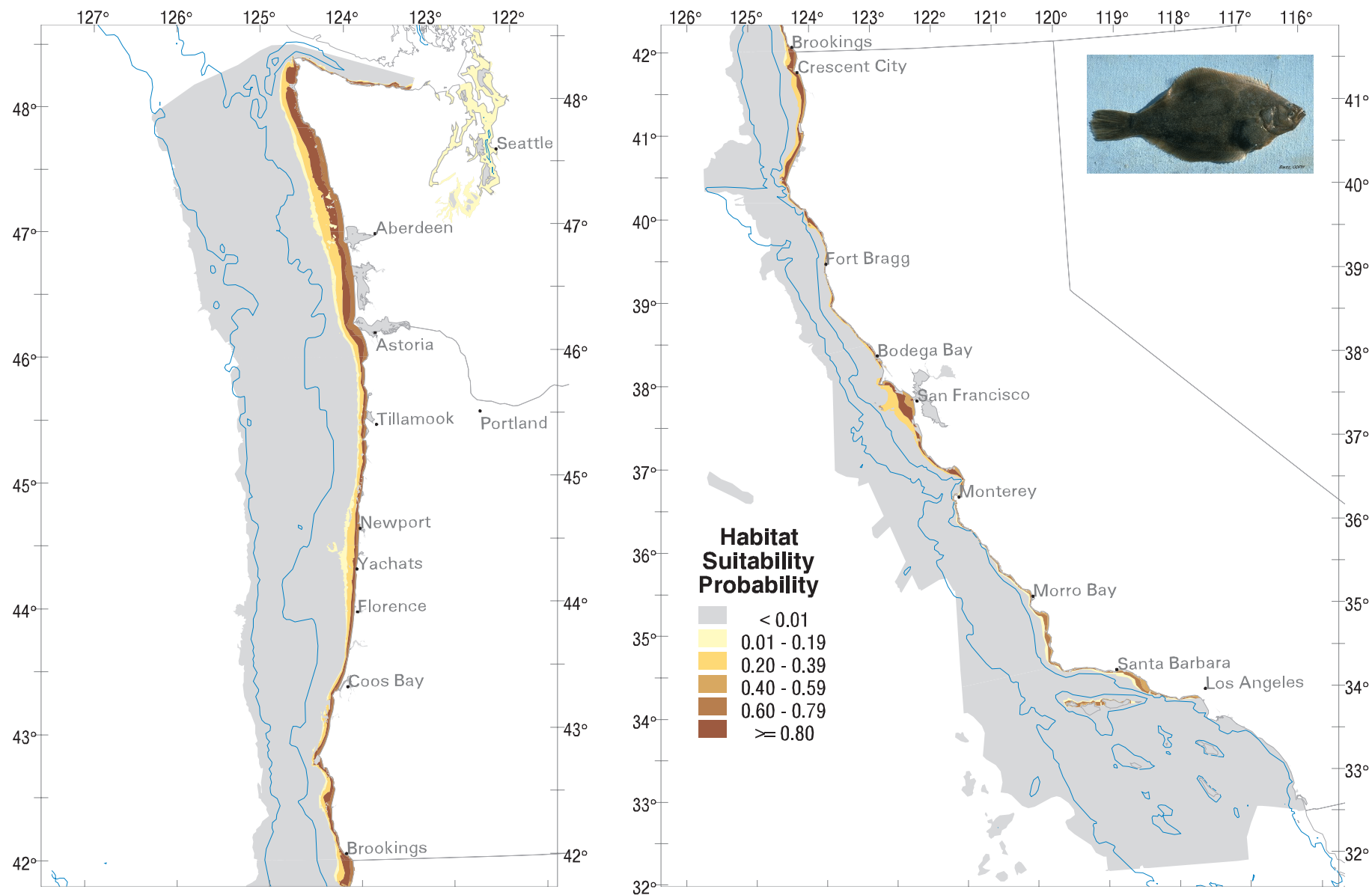|	
⬜	< 0.01
🟨	0.01 - 0.19
🟧	0.20 - 0.39
🟫	0.40 - 0.59
🟫	0.60 - 0.79
🟫	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Sablefish - Larvae

Habitat Suitability Probability

░	< 0.01
░	0.01 - 0.19
░	0.20 - 0.39
░	0.40 - 0.59
░	0.60 - 0.79
░	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date : November 01 , 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from : HUD

Sand Sole - Adult

Habitat Suitability Probability

- < 0.01
- 0.01 - 0.19
- 0.20 - 0.39
- 0.40 - 0.59
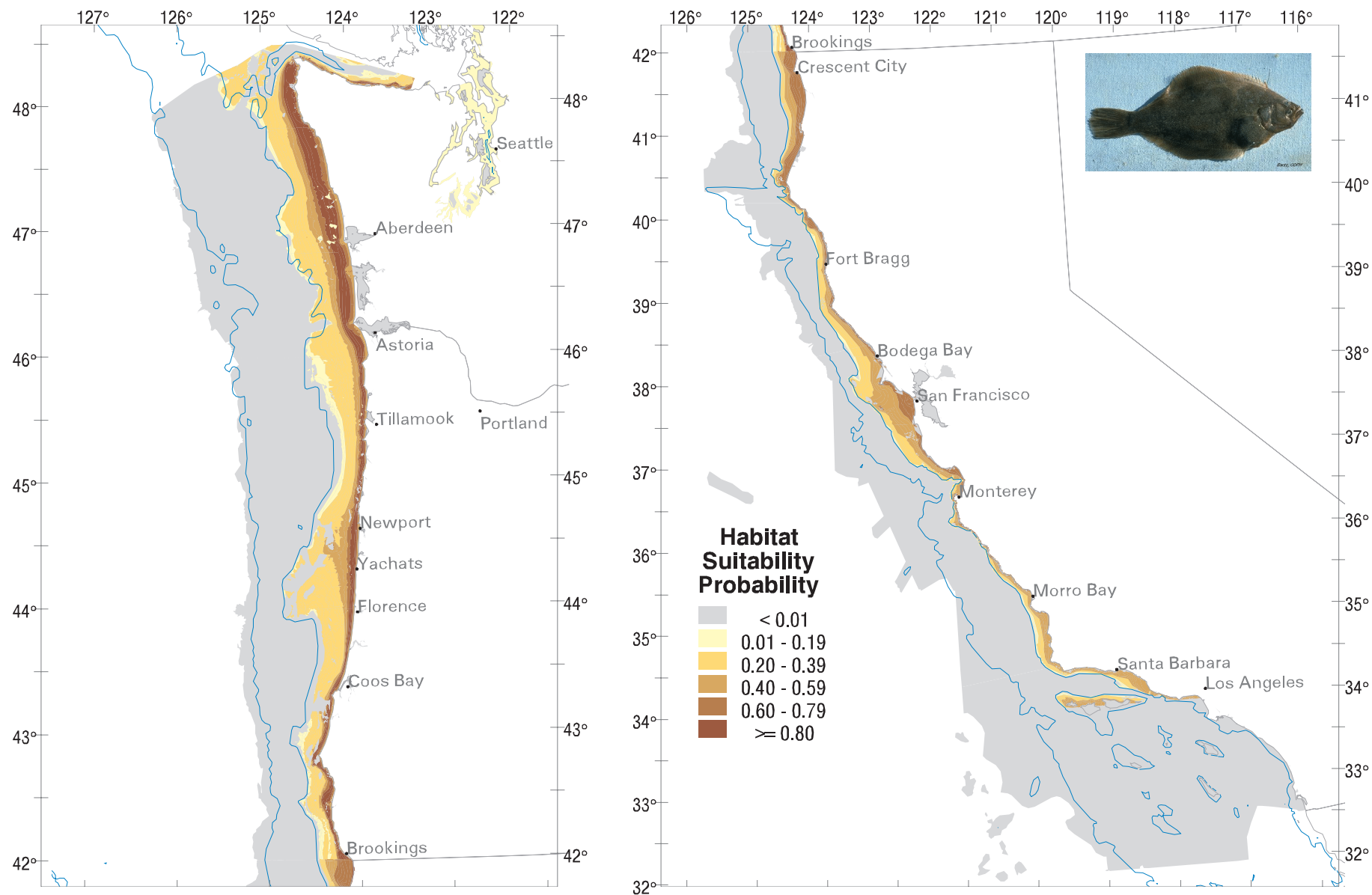- 0.60 - 0.79
- >= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Sand Sole - Juvenile

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Brookings
Crescent City
Fort Bragg
Bodega Bay
San Francisco
Monterey
Morro Bay
Santa Barbara
Los Angeles

Seattle
Aberdeen
Astoria
Portland
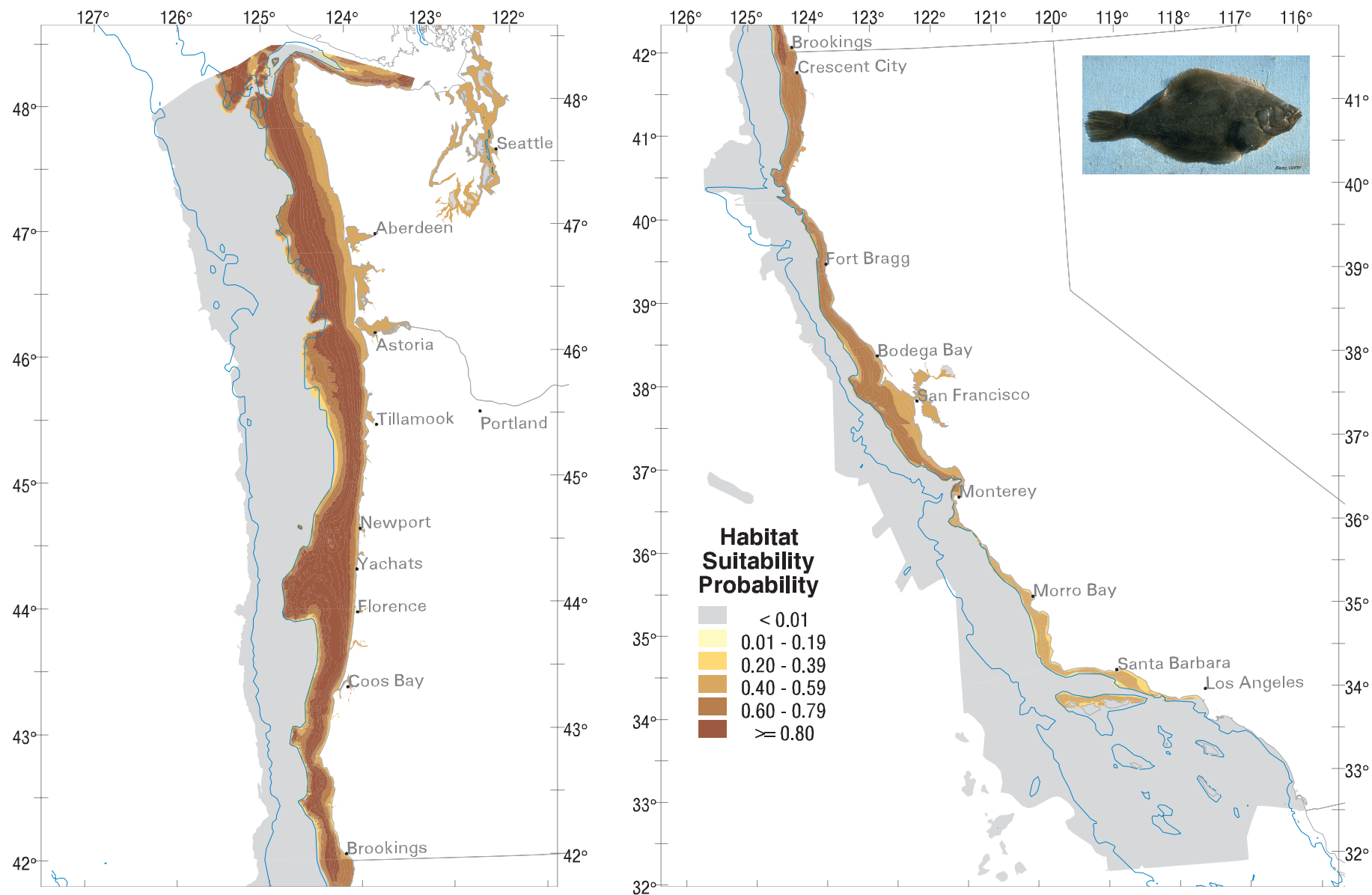Tillamook
Newport
Yachats
Florence
Coos Bay
Brookings

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Sand Sole - Larvae

Habitat Suitability Probability

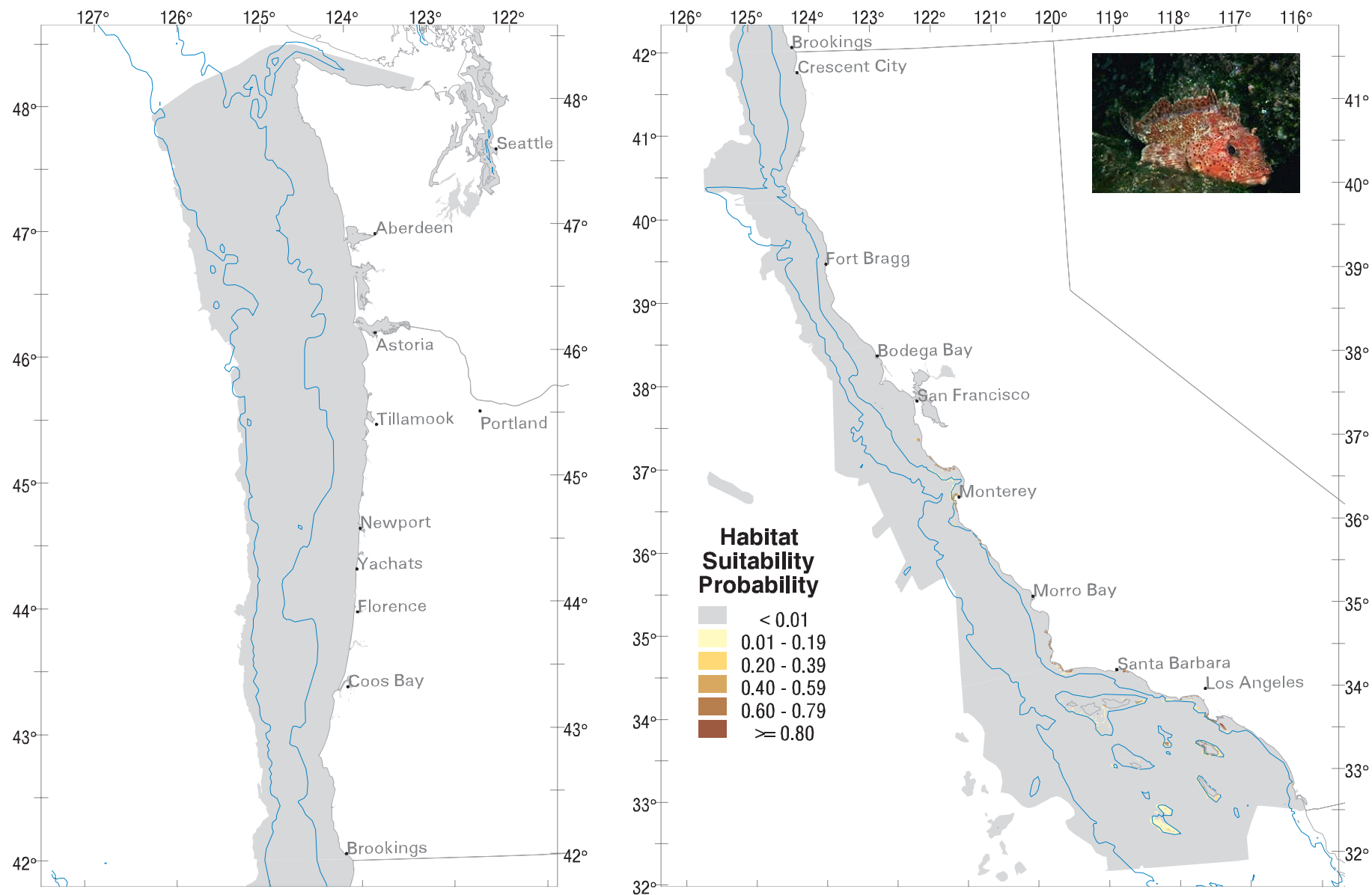|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

California Scorpionfish - Adult

**Habitat
Suitability
Probability**

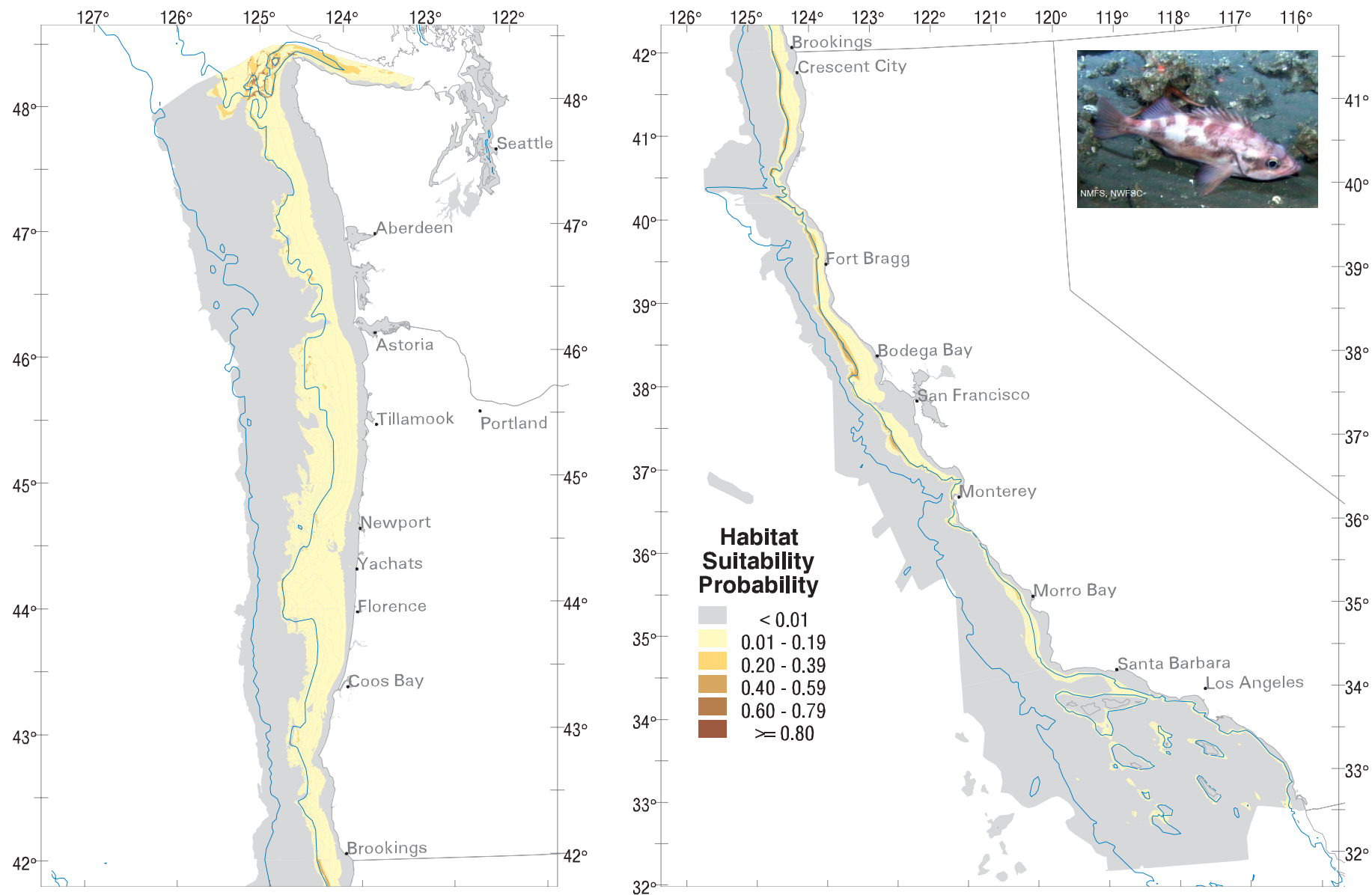|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Sharpchin Rockfish - Adult

Habitat Suitability Probability

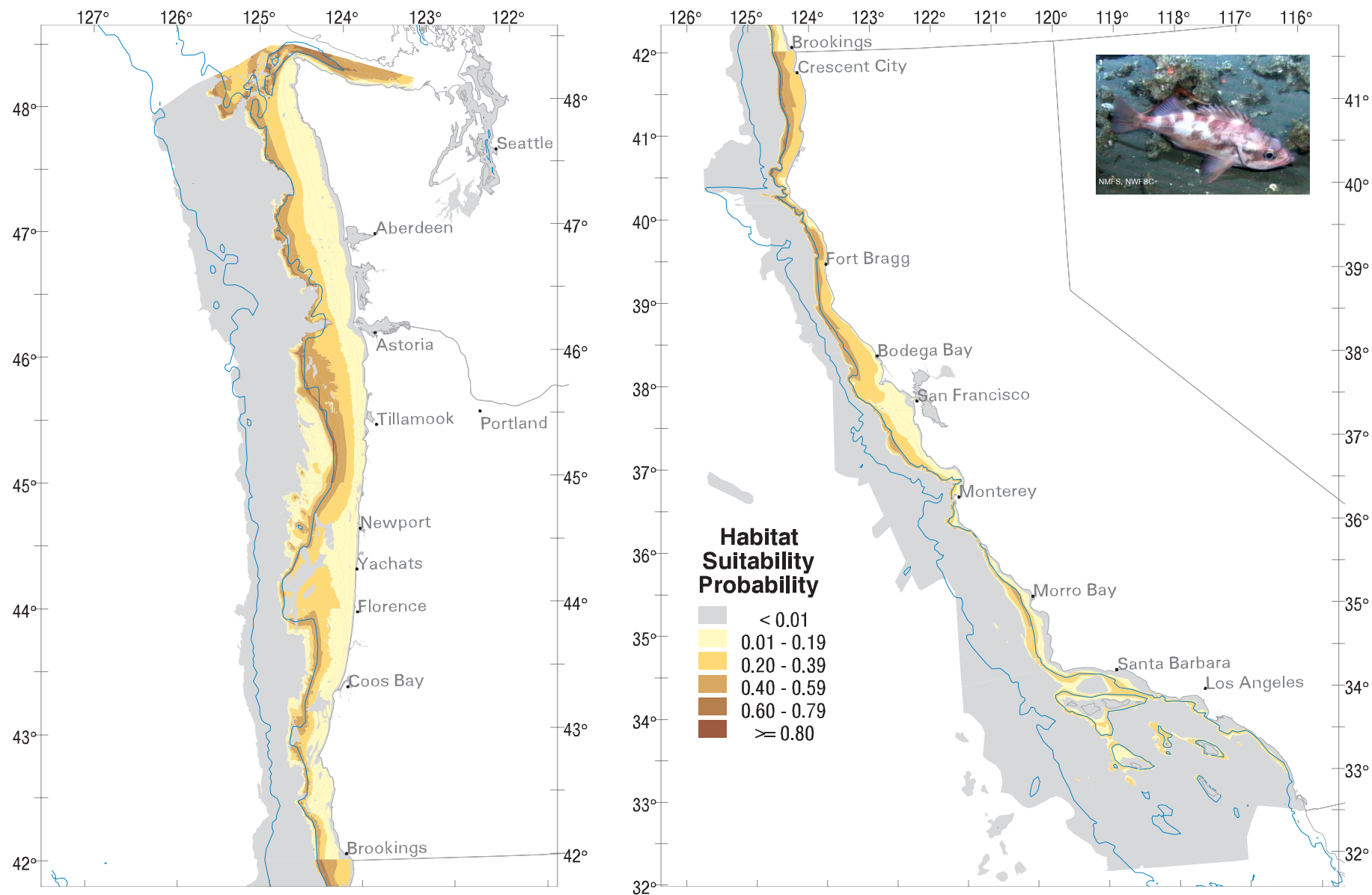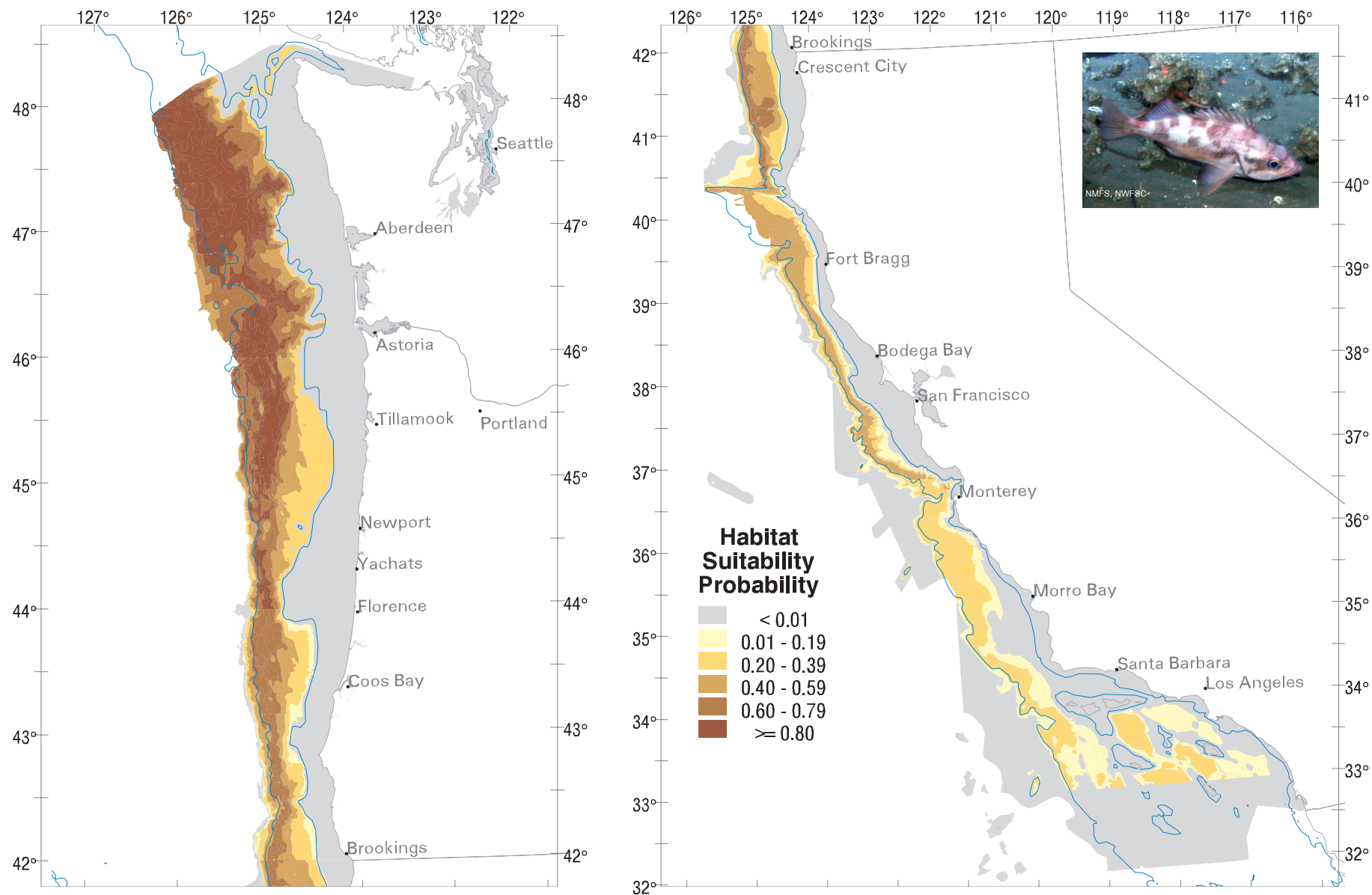|	
⬜	< 0.01
🟨	0.01 - 0.19
🟧	0.20 - 0.39
🟫	0.40 - 0.59
🟫	0.60 - 0.79
🟫	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey

Pacific Coast Groundfish EFH FEIS

December 2005

Sharpchin Rockfish - Juvenile

Habitat Suitability Probability

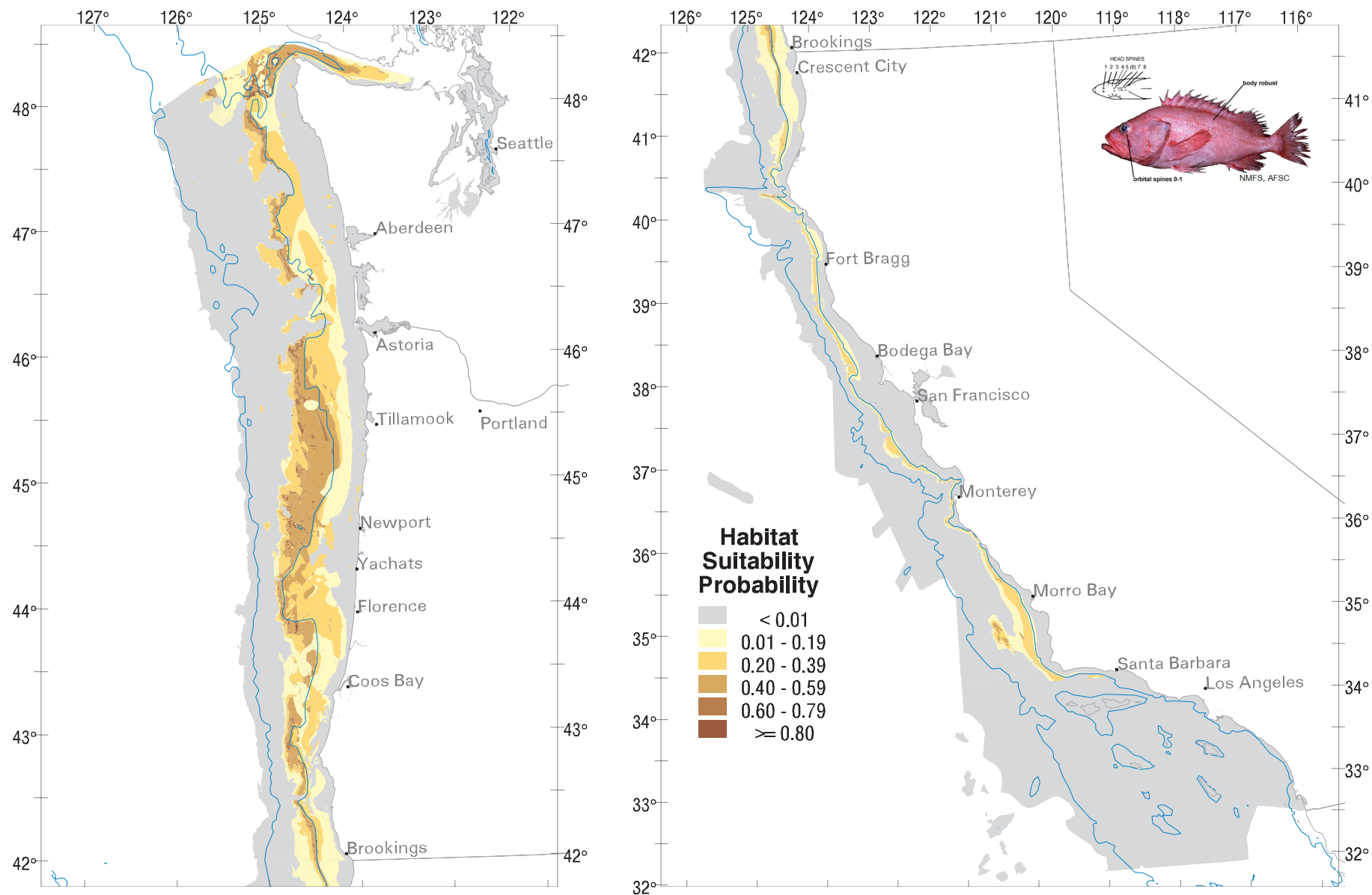|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Sharpchin Rockfish - Larvae

Habitat Suitability Probability

|	
![gray]	< 0.01
![lightyellow]	0.01 - 0.19
![yellow]	0.20 - 0.39
![lightbrown]	0.40 - 0.59
![brown]	0.60 - 0.79
![darkbrown]	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Shortraker Rockfish - Adult

Habitat Suitability Probability

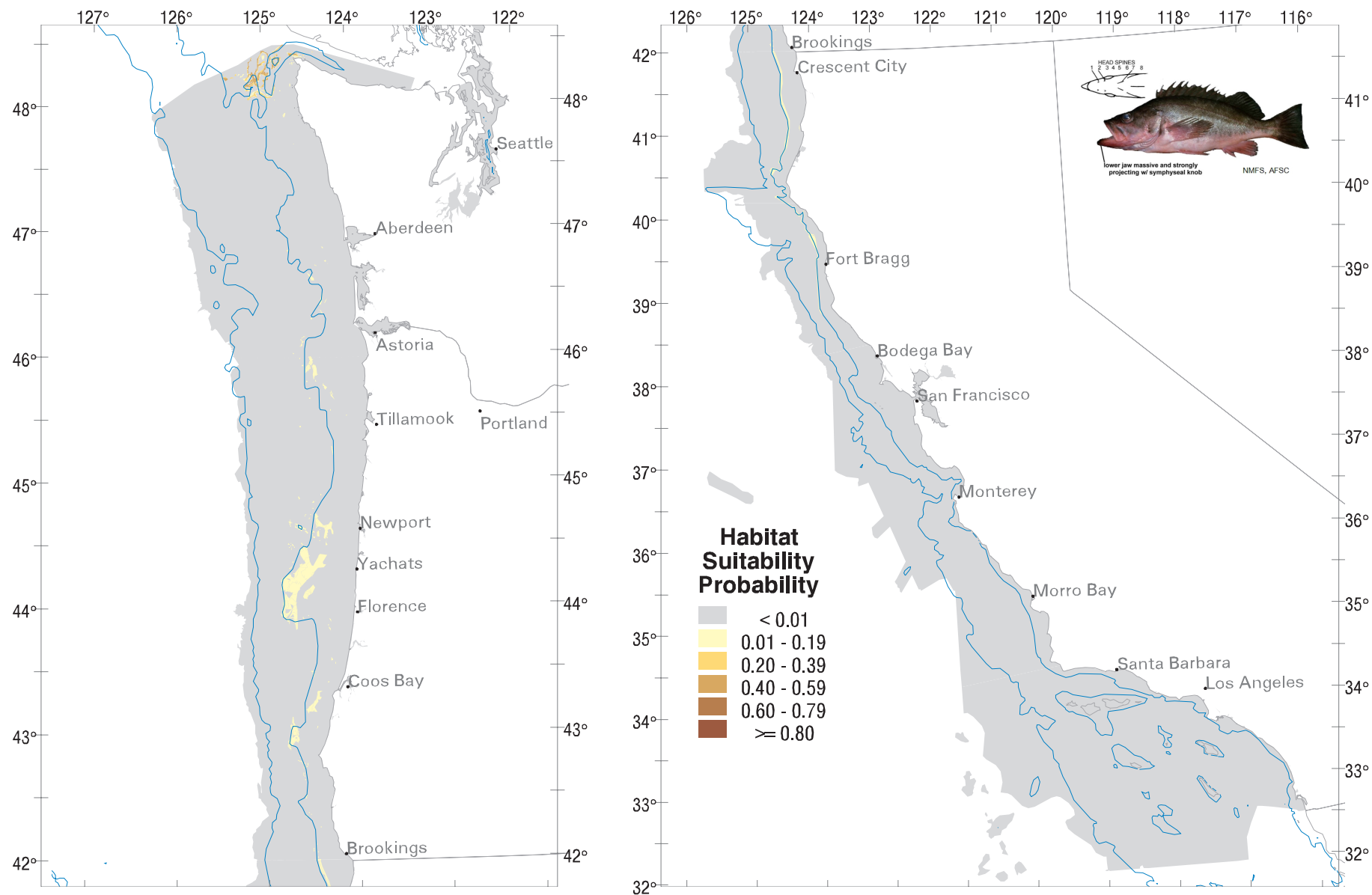|	
(gray)	< 0.01
(pale yellow)	0.01 - 0.19
(yellow)	0.20 - 0.39
(light brown)	0.40 - 0.59
(brown)	0.60 - 0.79
(dark brown)	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Shortbelly Rockfish - Adult
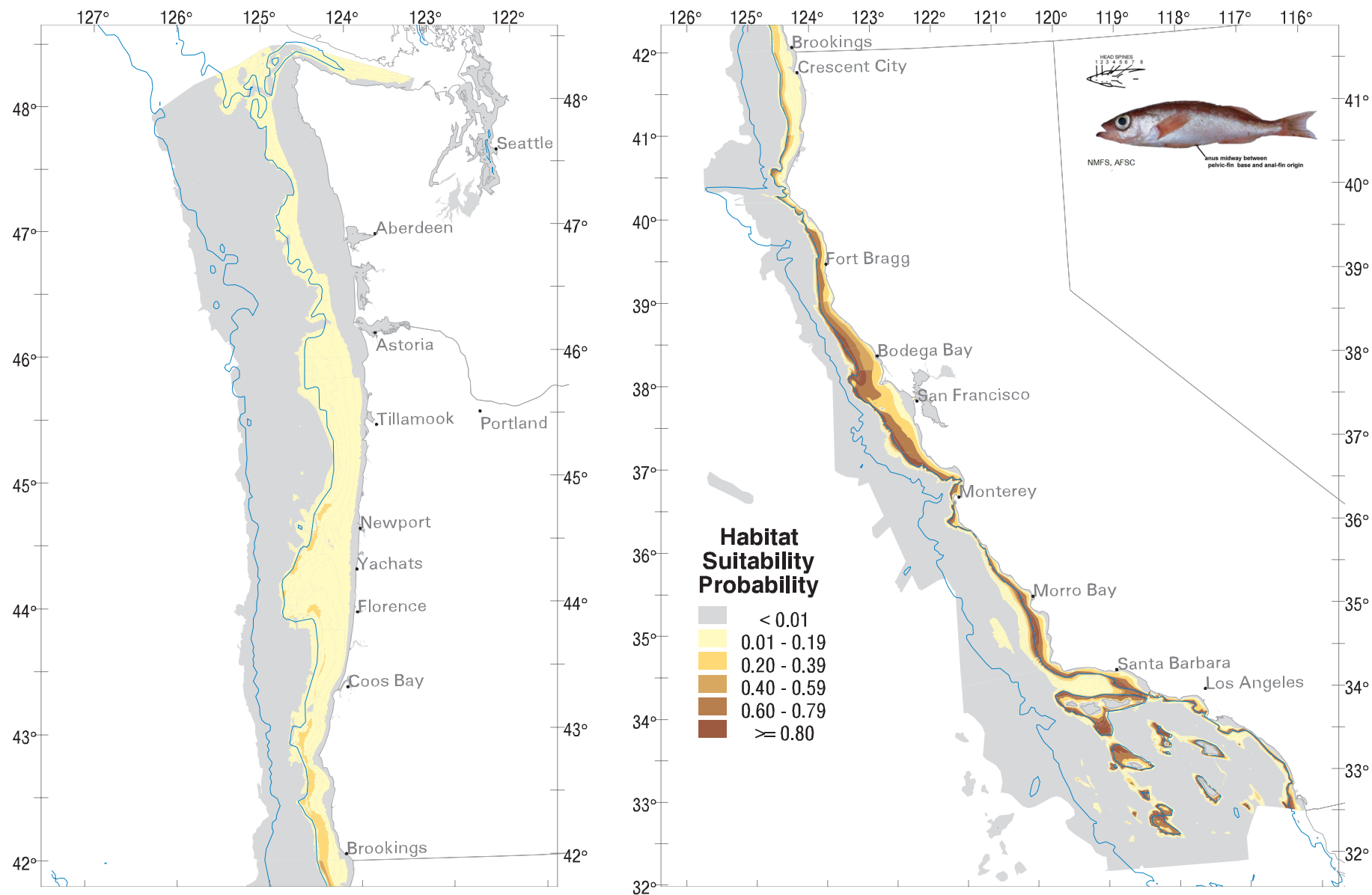
Habitat Suitability Probability

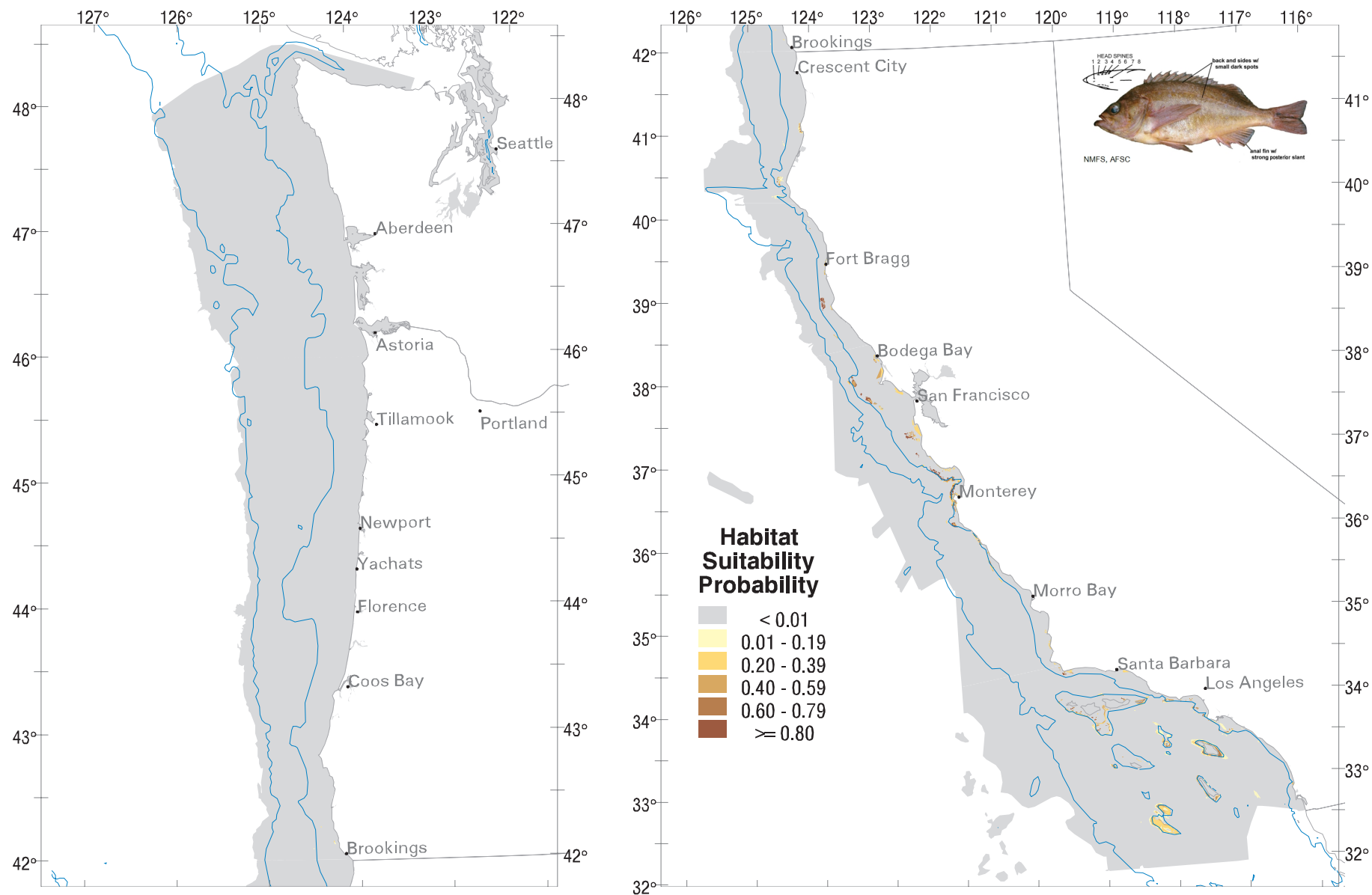|	
▨	< 0.01
▨	0.01 - 0.19
▨	0.20 - 0.39
▨	0.40 - 0.59
▨	0.60 - 0.79
▨	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey+

Pacific Coast Groundfish EFH FEIS

December 2005

Silvergray Rockfish - Adult

HEAD SPINES
2 3 4 5 6 7 8

lower jaw massive and strongly
projecting w/ symphyseal knob

NMFS, AFSC

Brookings
Crescent City

Fort Bragg

Bodega Bay
San Francisco

Monterey

Morro Bay

Santa Barbara
Los Angeles

Brookings

Seattle

Aberdeen

Astoria

Tillamook
Portland

Newport
Yachats
Florence

Coos Bay

Brookings

**Habitat
Suitability
Probability**

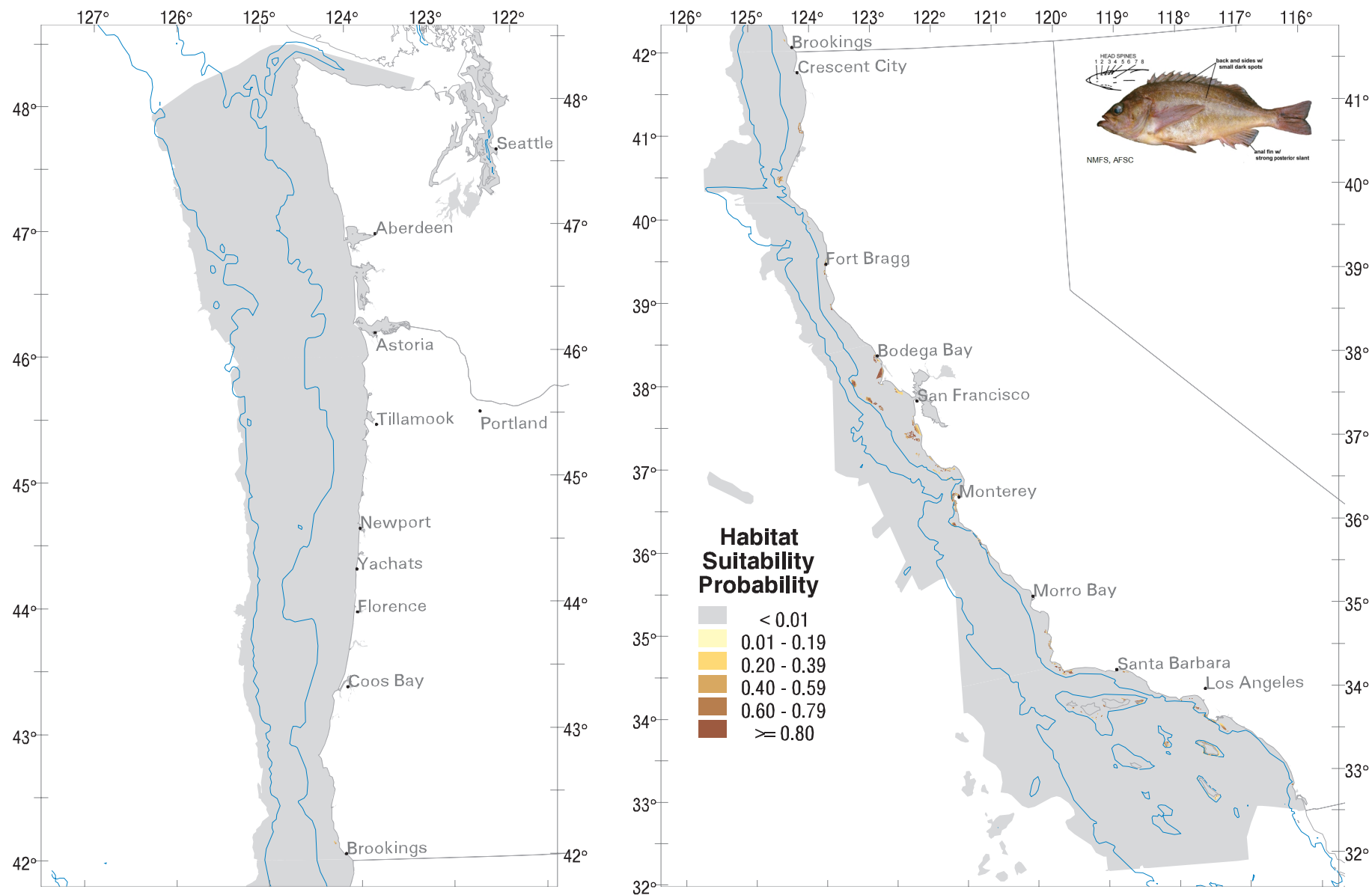|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey

Pacific Coast Groundfish EFH FEIS

December 2005

Speckled Rockfish - Adult

Habitat Suitability Probability

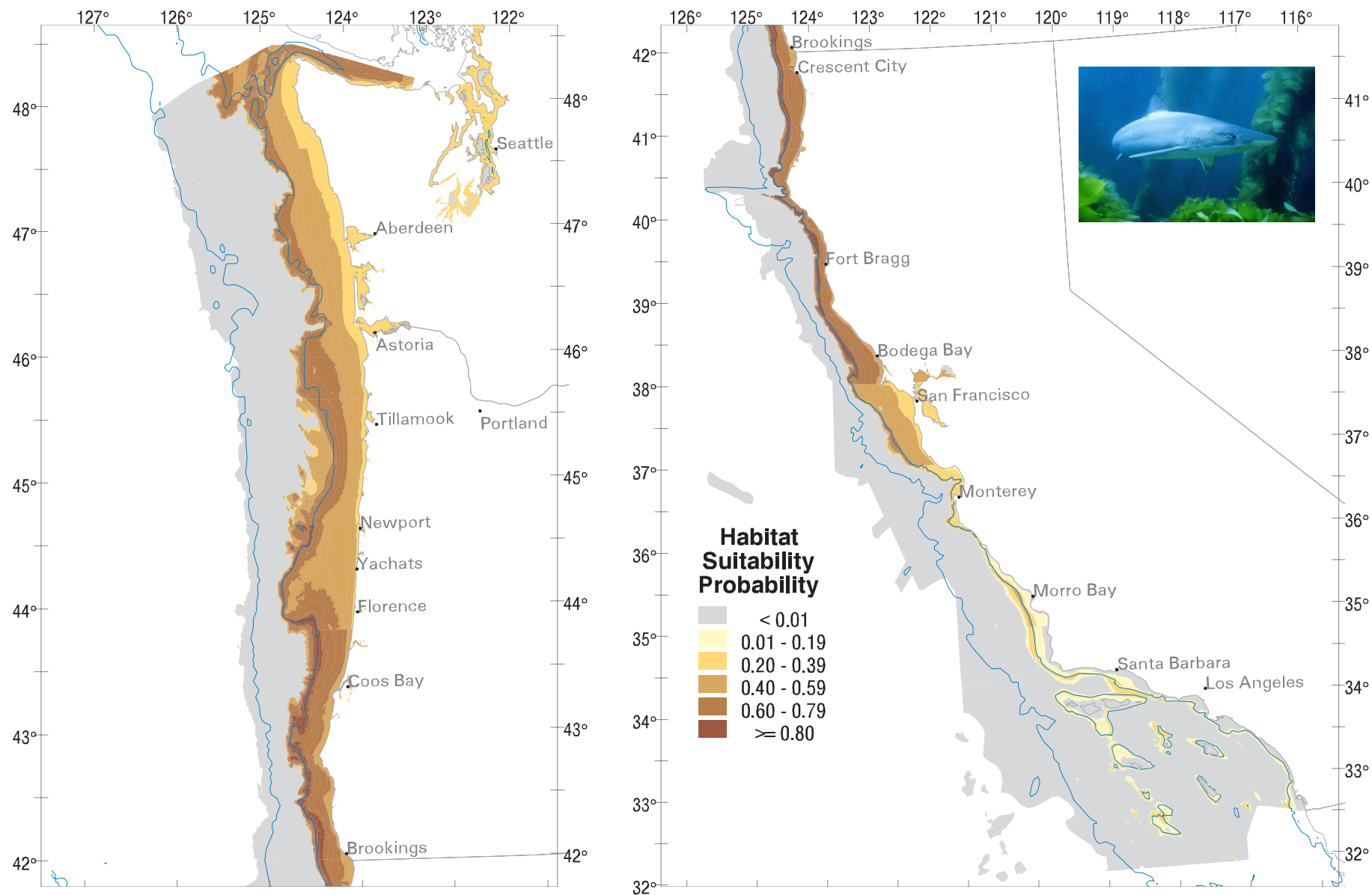| Color	Probability
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Speckled Rockfish - Juvenile

HEAD SPINES
1 2 3 4 5 6 7 8

back and sides w/
small dark spots

anal fin w/
strong posterior slant

NMFS, AFSC

**Habitat
Suitability
Probability**

< 0.01
0.01 - 0.19
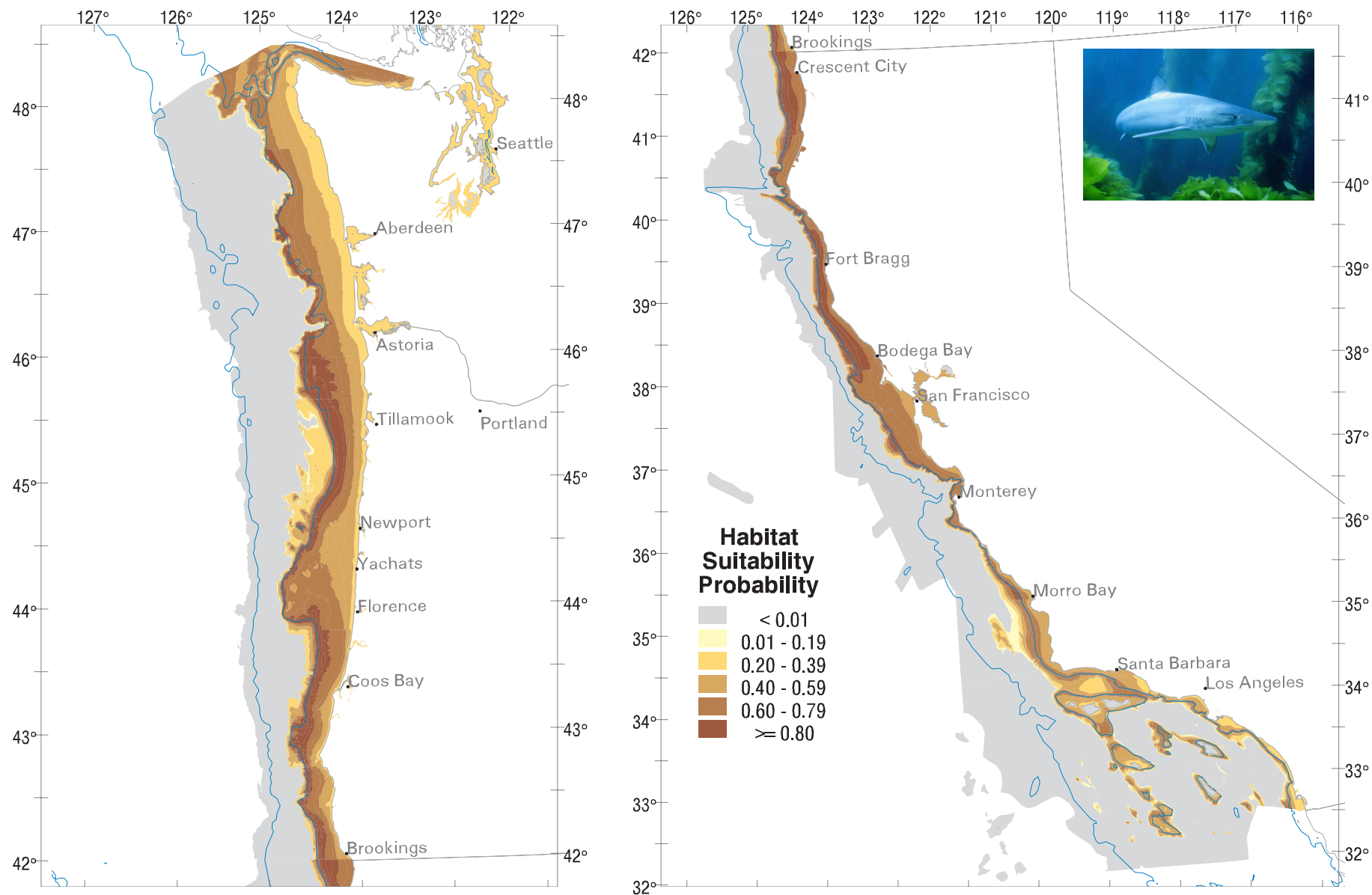0.20 - 0.39
0.40 - 0.59
0.60 - 0.79
>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Soupfin Shark - Adult

Habitat Suitability Probability

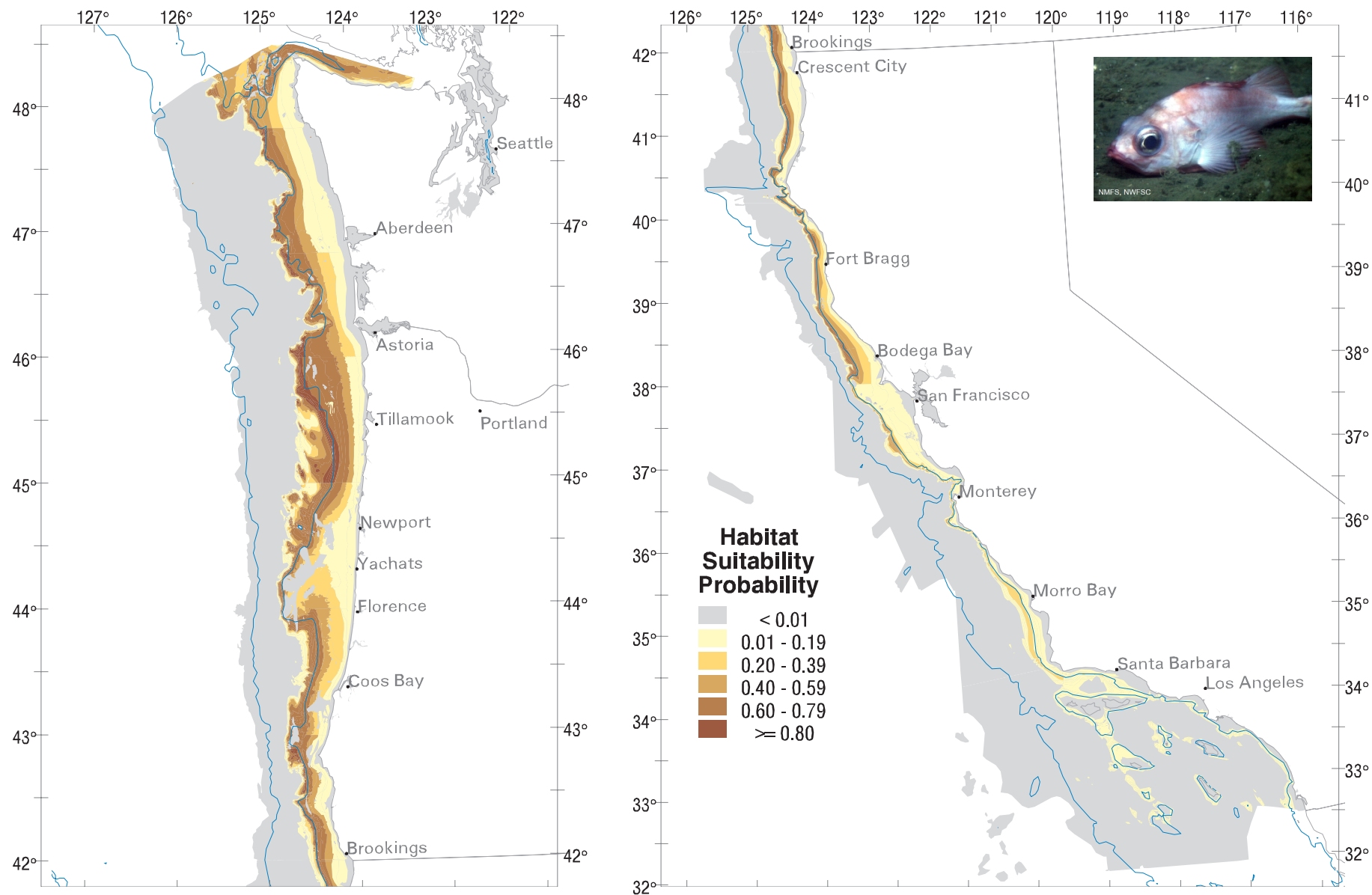|	
▨	< 0.01
▨	0.01 - 0.19
▨	0.20 - 0.39
▨	0.40 - 0.59
▨	0.60 - 0.79
▨	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Soupfin Shark - Juvenile

**Habitat
Suitability
Probability**

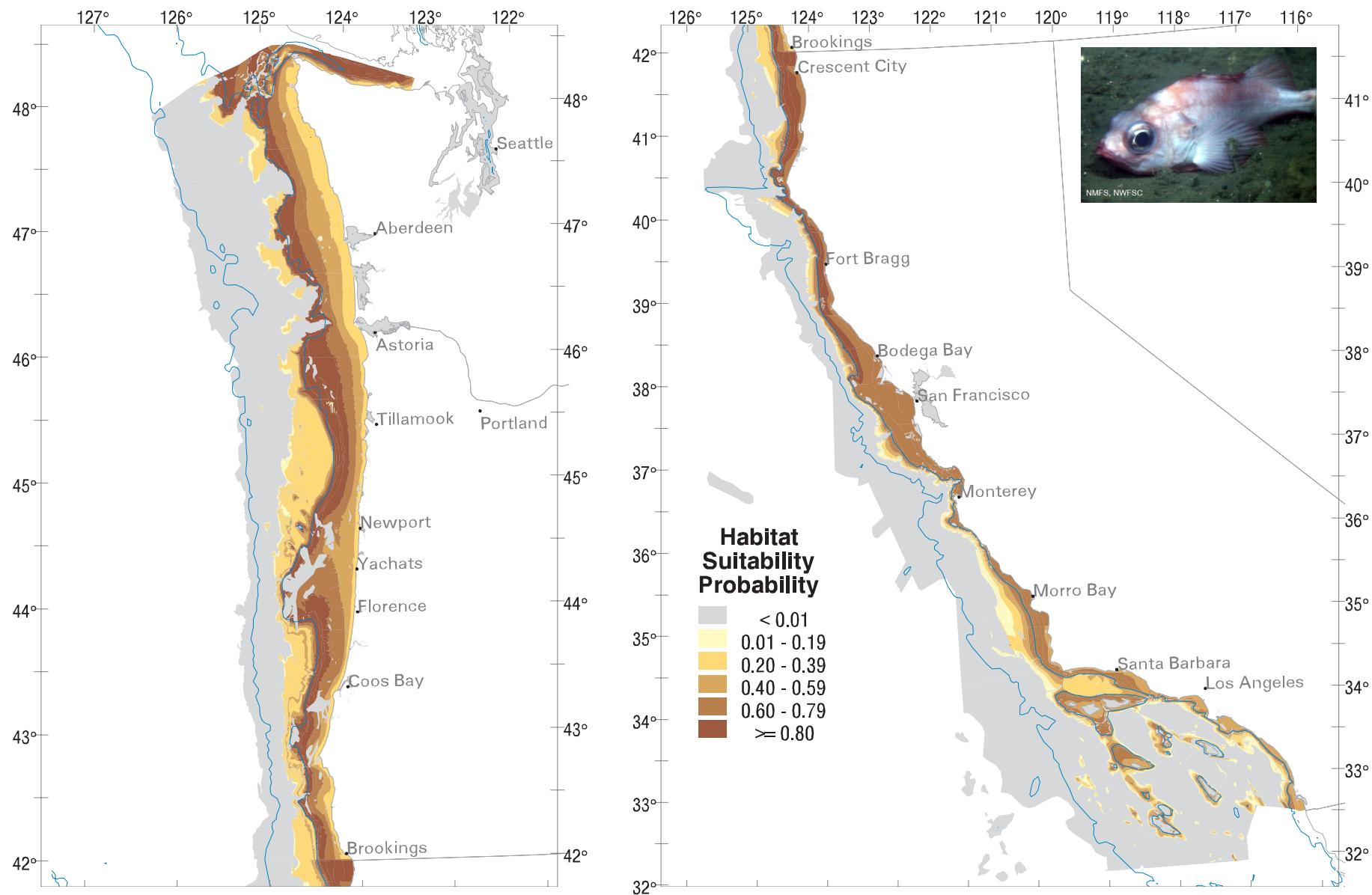|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

*Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD*

Pacific Coast Groundfish EFH FEIS

December 2005

Splitnose Rockfish - Adult

Habitat Suitability Probability

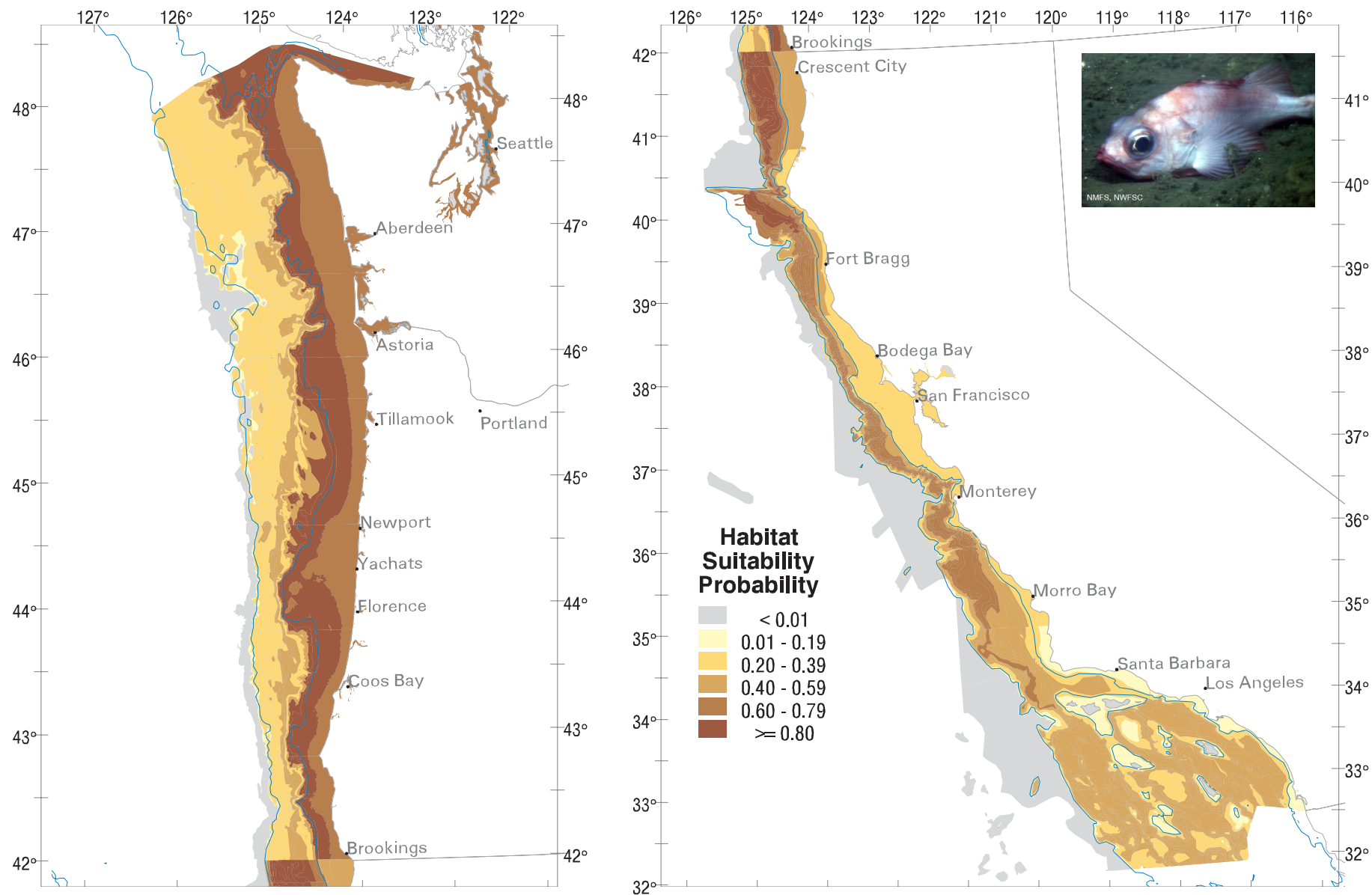|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey

Splitnose Rockfish - Juvenile

Habitat Suitability Probability

	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

NMFS, NWFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Splitnose Rockfish - Larvae

Habitat Suitability Probability

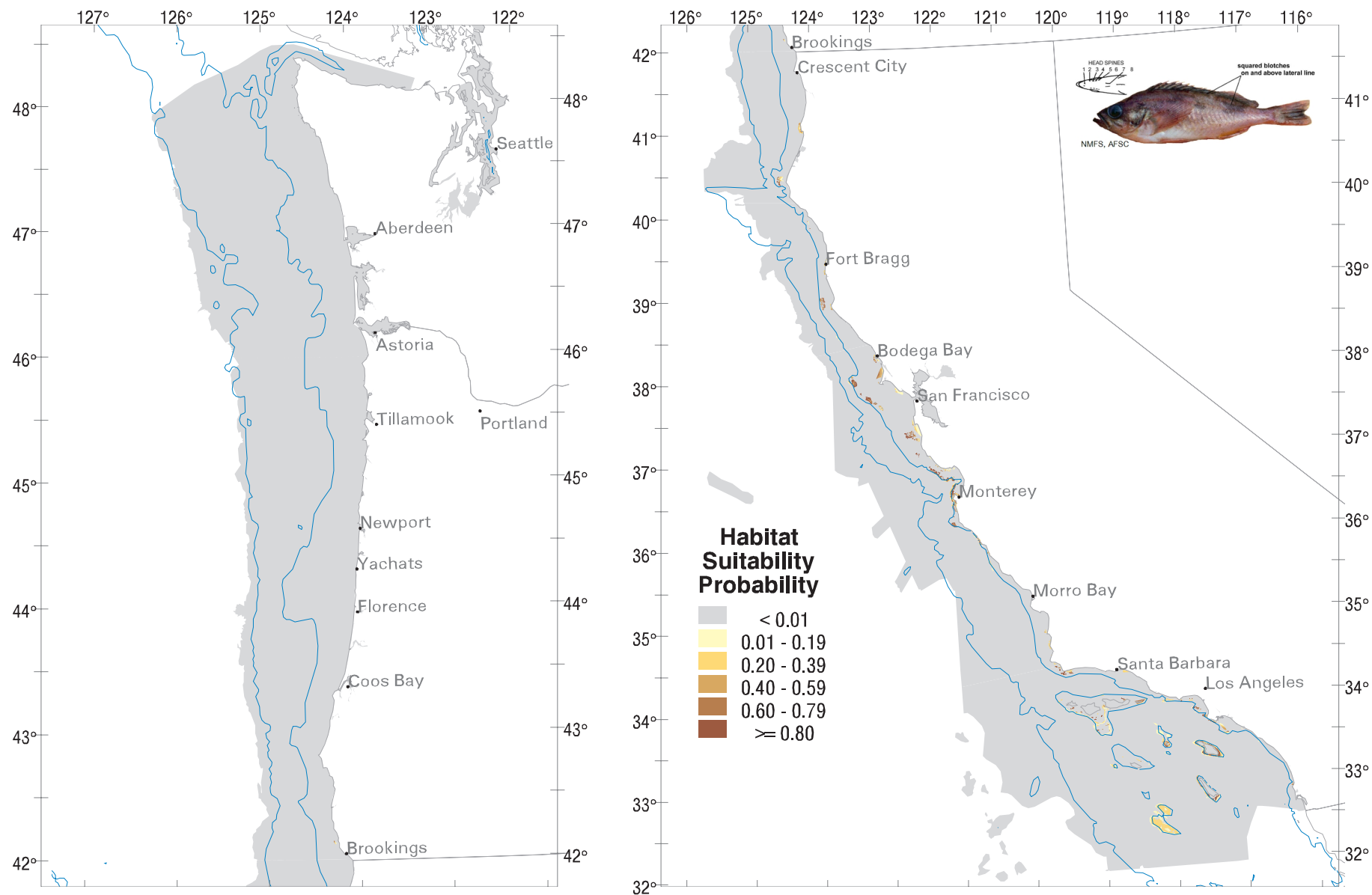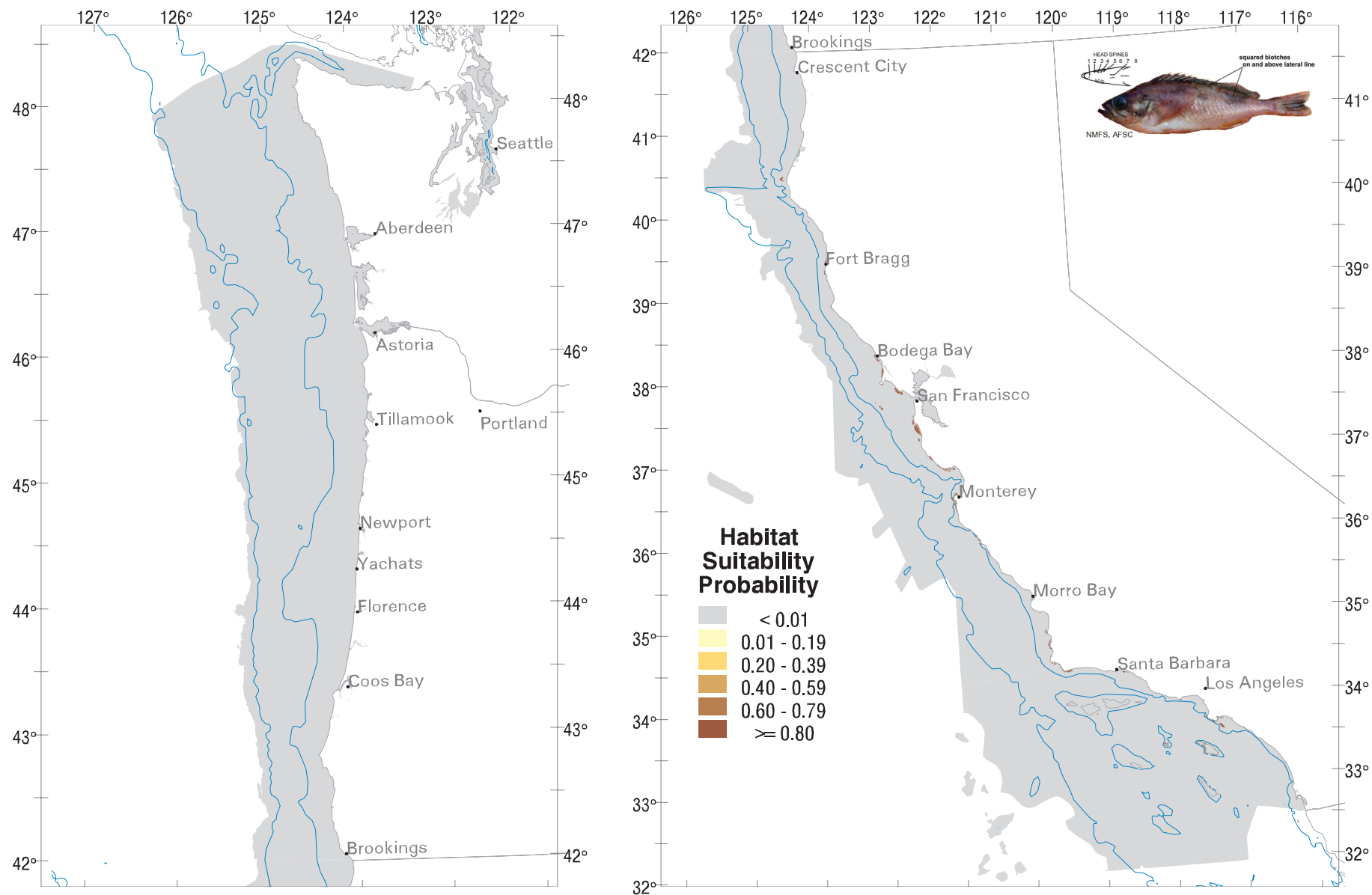|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS   December 2005

Squarespot Rockfish - Adult

127° 126° 125° 124° 123° 122°

48°

47°

46°

45°

44°

43°

42°

Seattle

Aberdeen

Astoria

Portland

Tillamook

Newport

Yachats

Florence

Coos Bay

Brookings

126° 125° 124° 123° 122° 121° 120° 119° 118° 117° 116°

Brookings
Crescent City

Fort Bragg

Bodega Bay
San Francisco

Monterey

Morro Bay

Santa Barbara
Los Angeles

HEAD SPINES
1 2 3 4 5 6 7 8

squared blotches
on and above lateral line

NMFS, AFSC

**Habitat
Suitability
Probability**

< 0.01
0.01 - 0.19
0.20 - 0.39
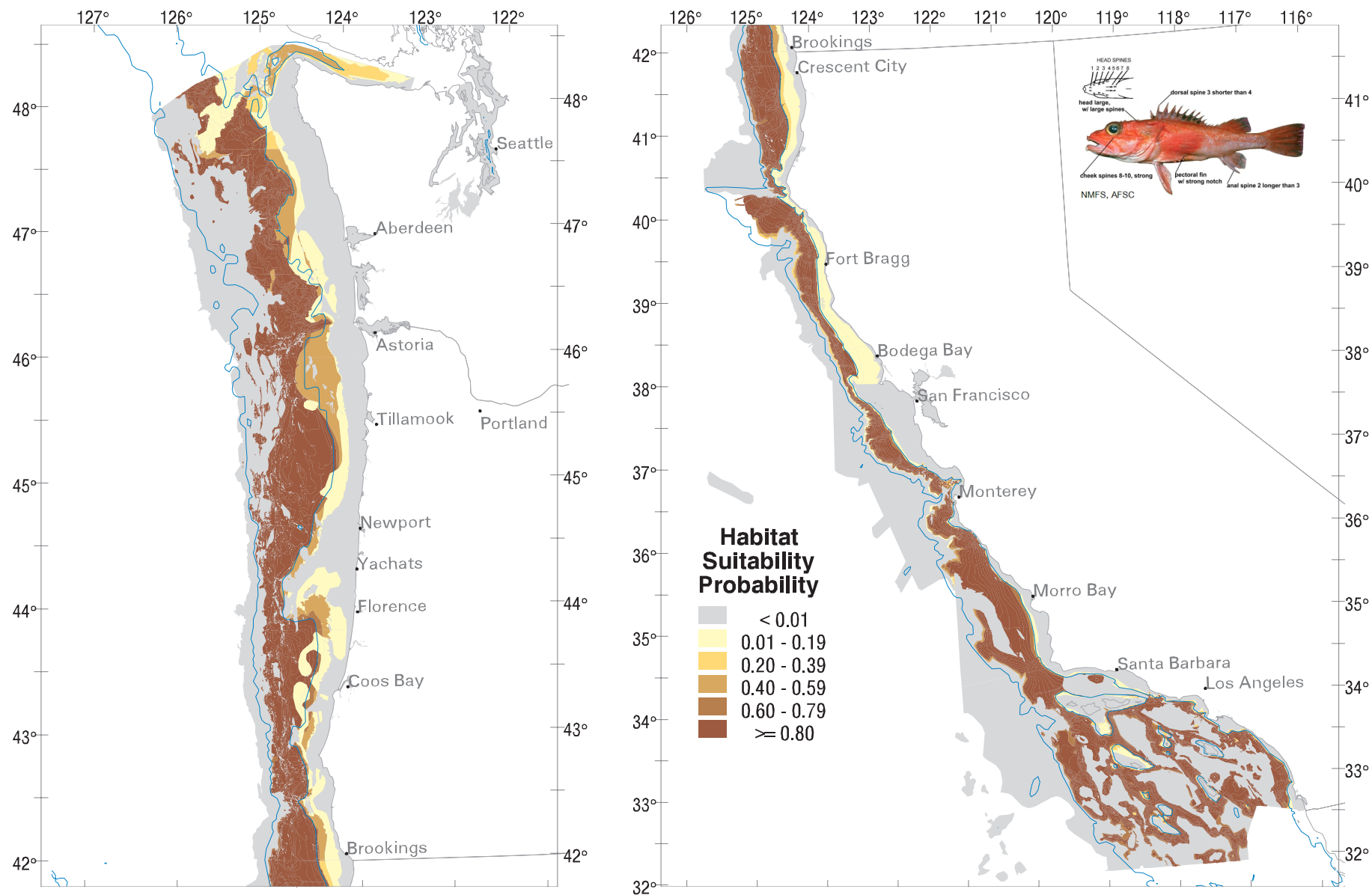0.40 - 0.59
0.60 - 0.79
>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Squarespot Rockfish - Juvenile

Seattle
Aberdeen
Astoria
Tillamook
Portland
Newport
Yachats
Florence
Coos Bay
Brookings

Brookings
Crescent City
Fort Bragg
Bodega Bay
San Francisco
Monterey
Morro Bay
Santa Barbara
Los Angeles

HEAD SPINES
1 2 3 4 5 6 7 8
squared blotches
on and above lateral line
NMFS, AFSC

Habitat Suitability Probability

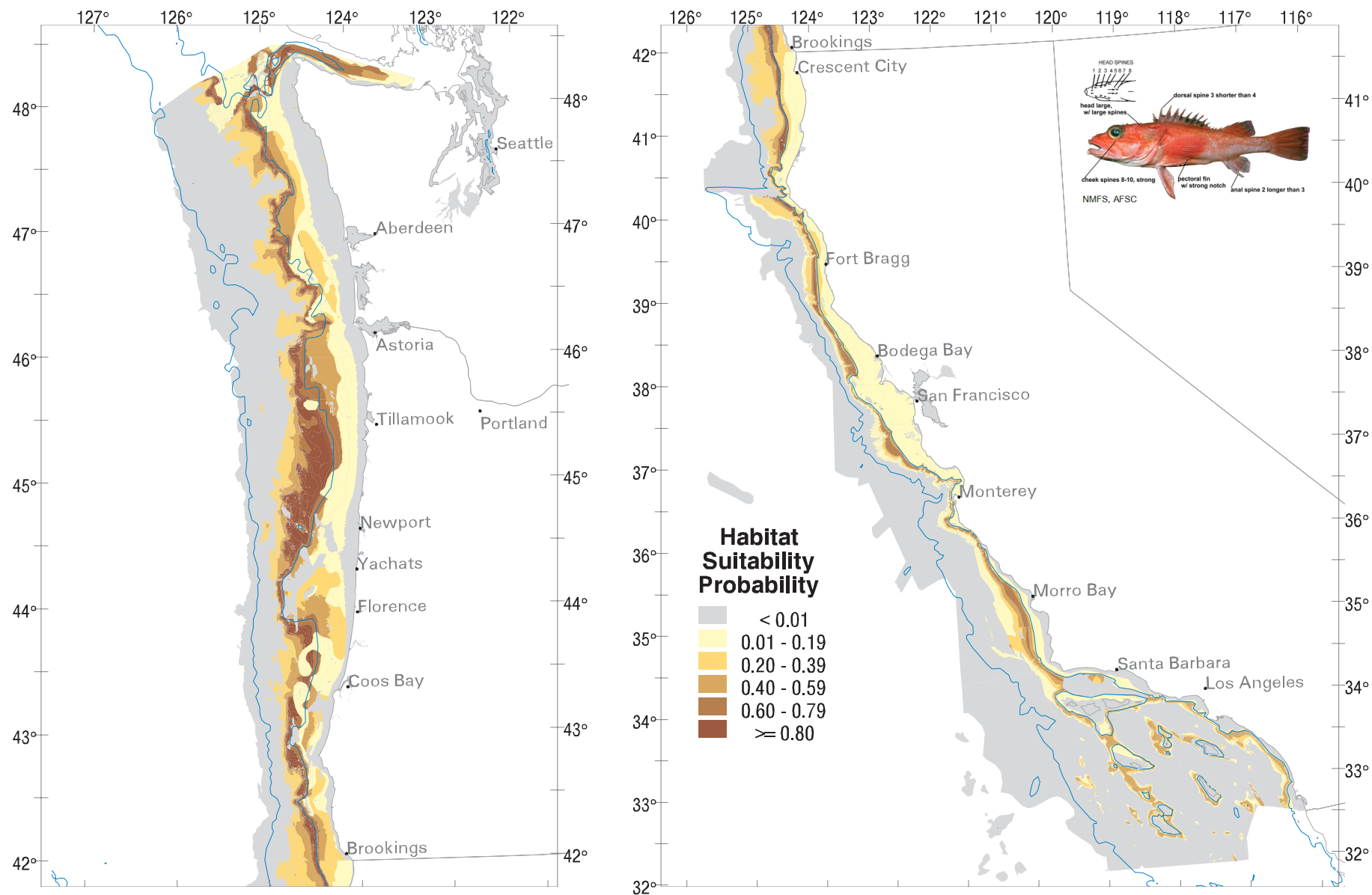|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Shortspine Thornyhead - Adult

Habitat Suitability Probability

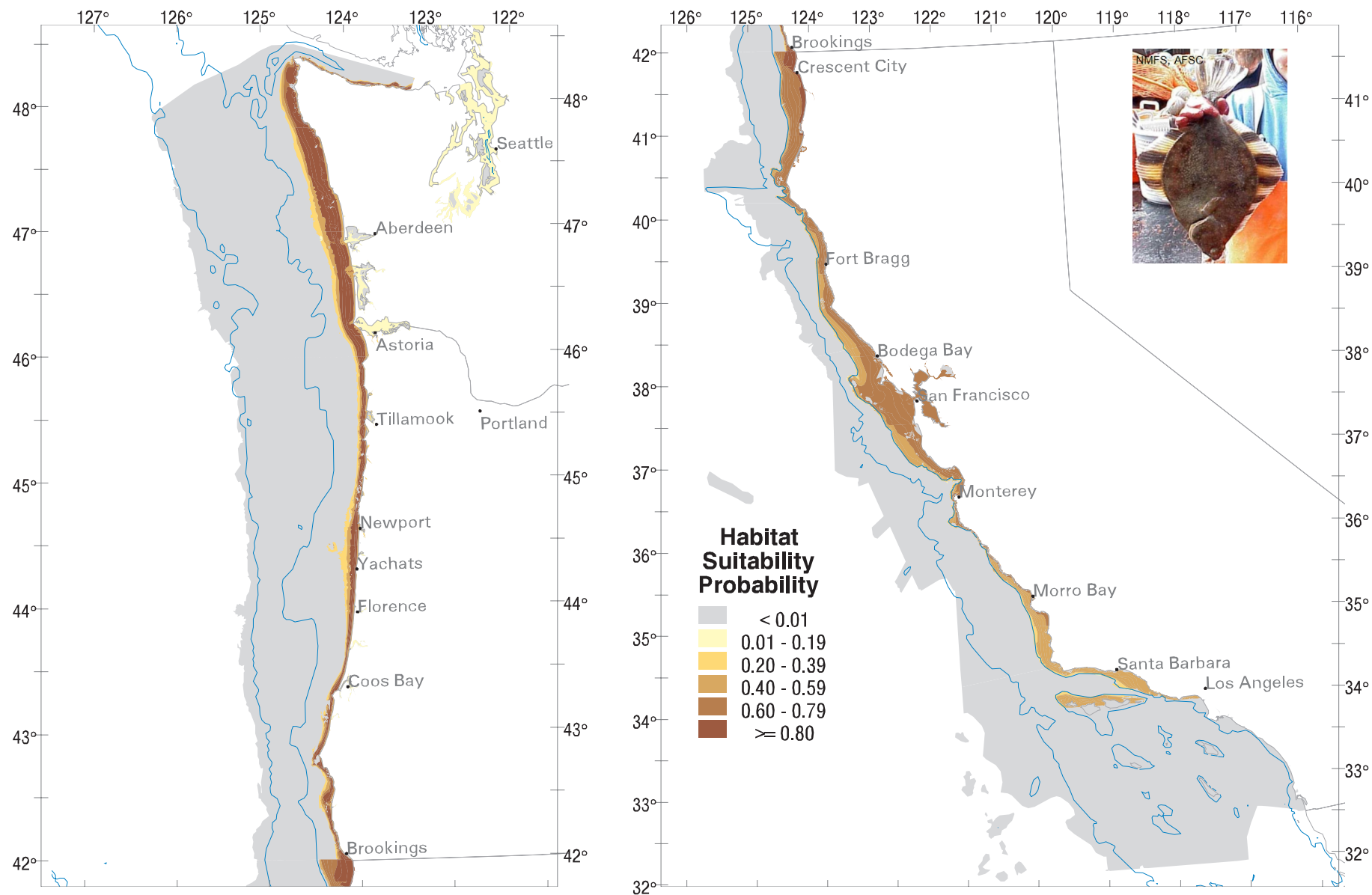|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date : November 01 , 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: 'HUD & Survey'

Pacific Coast Groundfish EFH FEIS

December 2005

Shortspine Thornyhead - Juvenile

Appendix I

Habitat Suitability Probability

- < 0.01
- 0.01 - 0.19
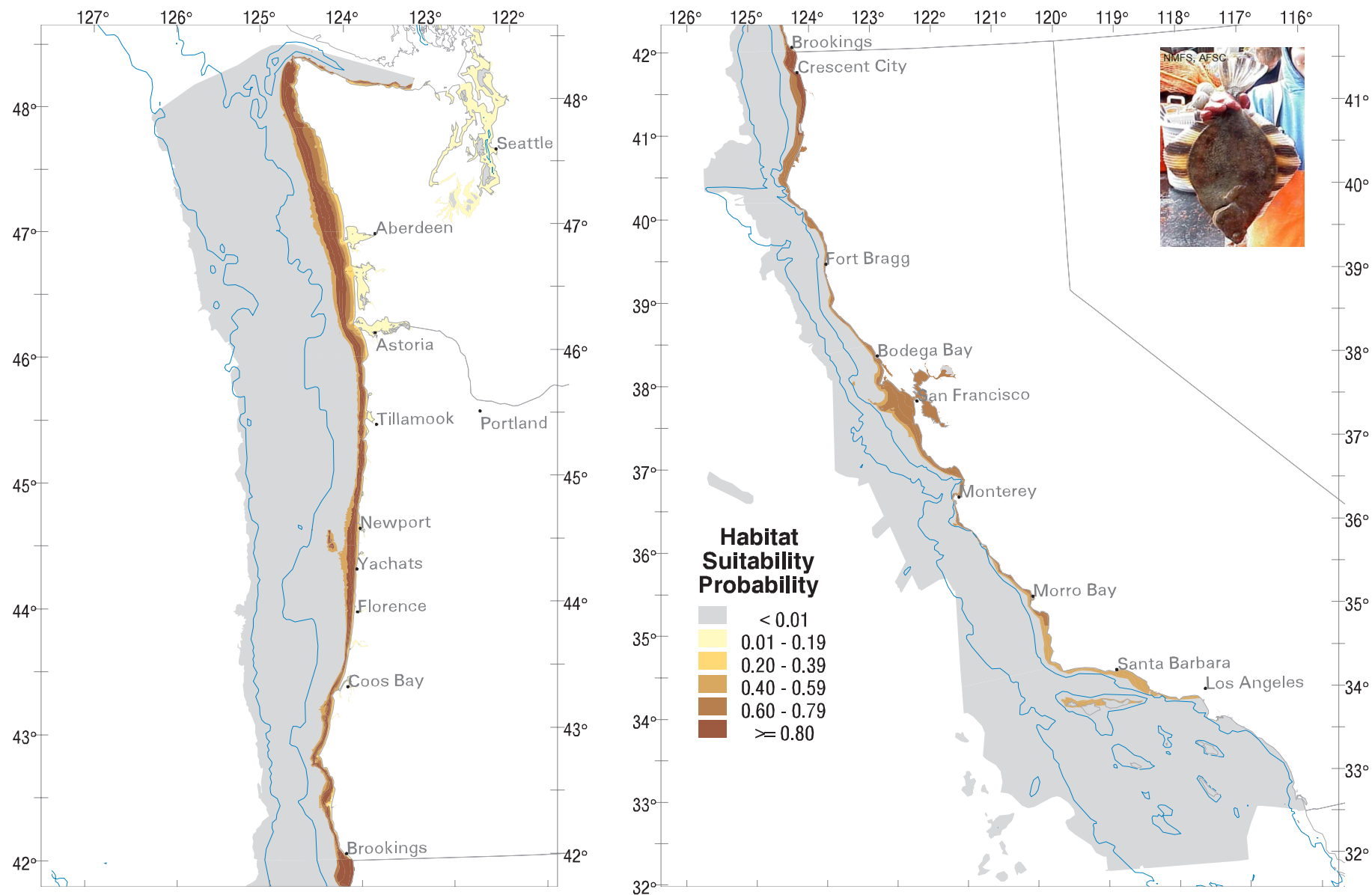- 0.20 - 0.39
- 0.40 - 0.59
- 0.60 - 0.79
- >= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Starry Flounder - Adult

NMFS, AFSC

Habitat Suitability Probability

▨	< 0.01
▨	0.01 - 0.19
▨	0.20 - 0.39
▨	0.40 - 0.59
▨	0.60 - 0.79
▨	>= 0.80

Left map labels: Seattle, Aberdeen, Astoria, Tillamook, Portland, Newport, Yachats, Florence, Coos Bay, Brookings

Right map labels: Brookings, Crescent City, Fort Bragg, Bodega Bay, San Francisco, Monterey, Morro Bay, Santa Barbara, Los Angeles
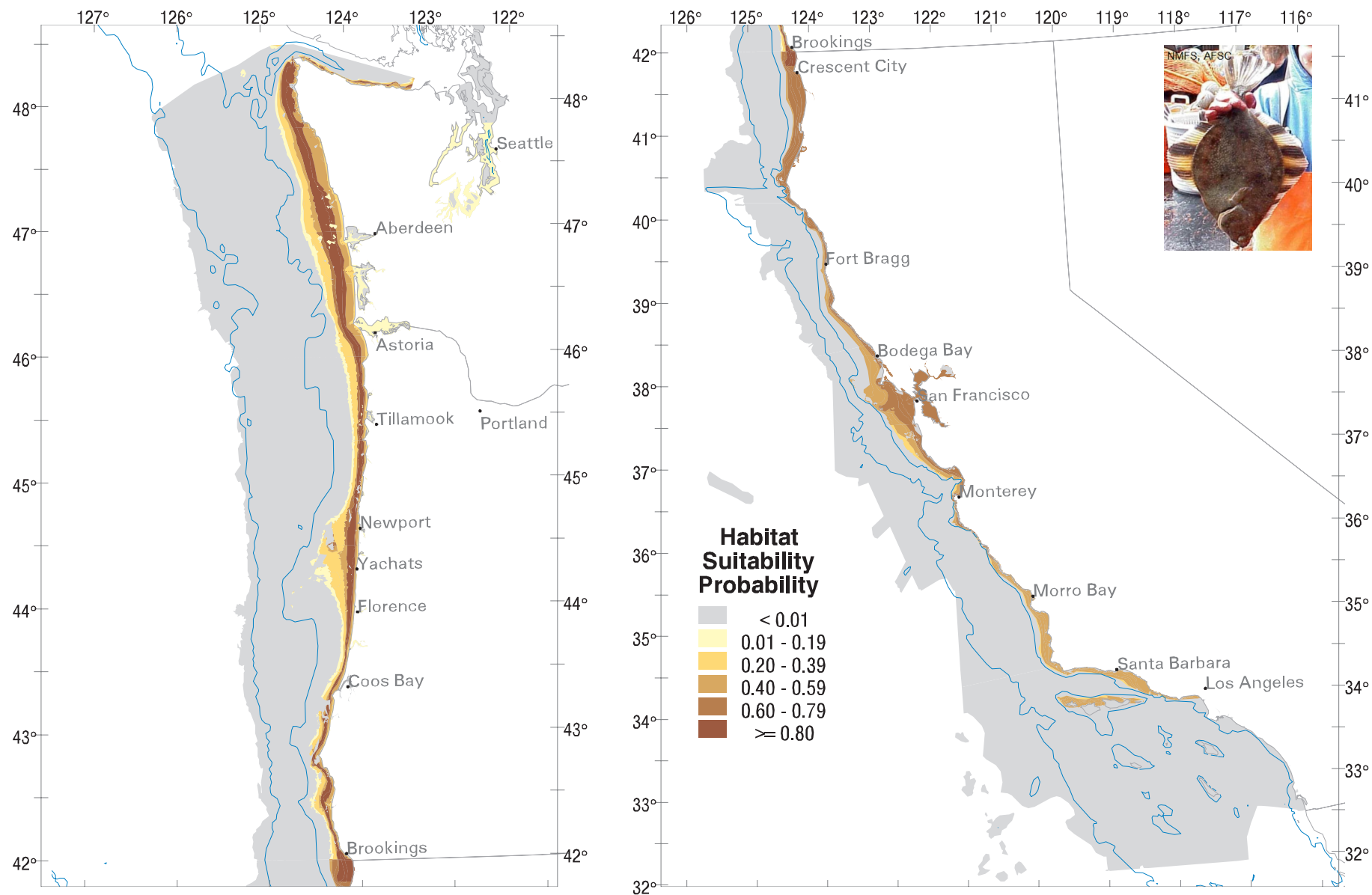
Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Starry Flounder - Eggs

**Habitat
Suitability
Probability**

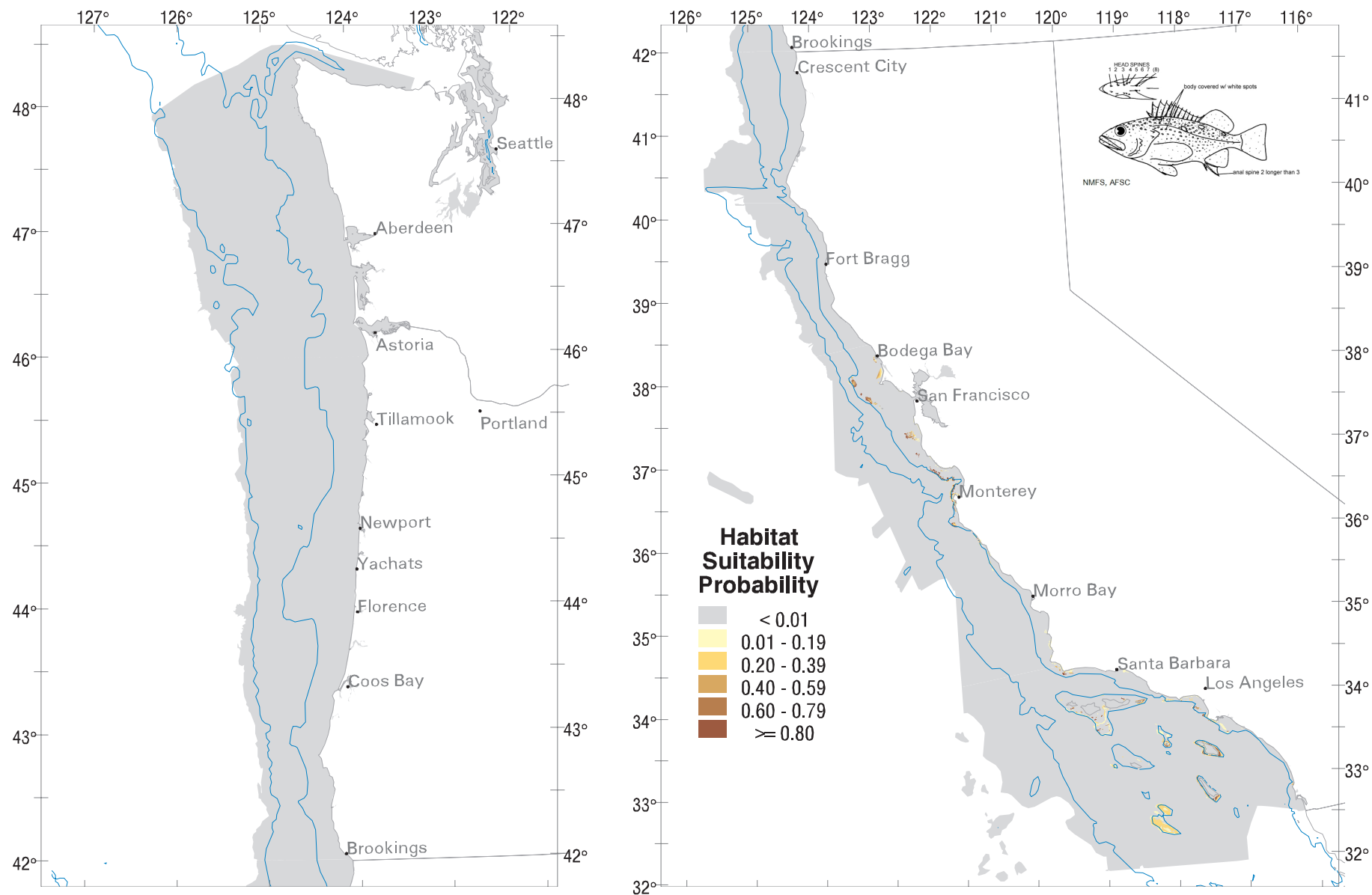|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

NMFS, AFSC

*Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD*

Pacific Coast Groundfish EFH FEIS

December 2005

Starry Flounder - Juvenile

Habitat Suitability Probability

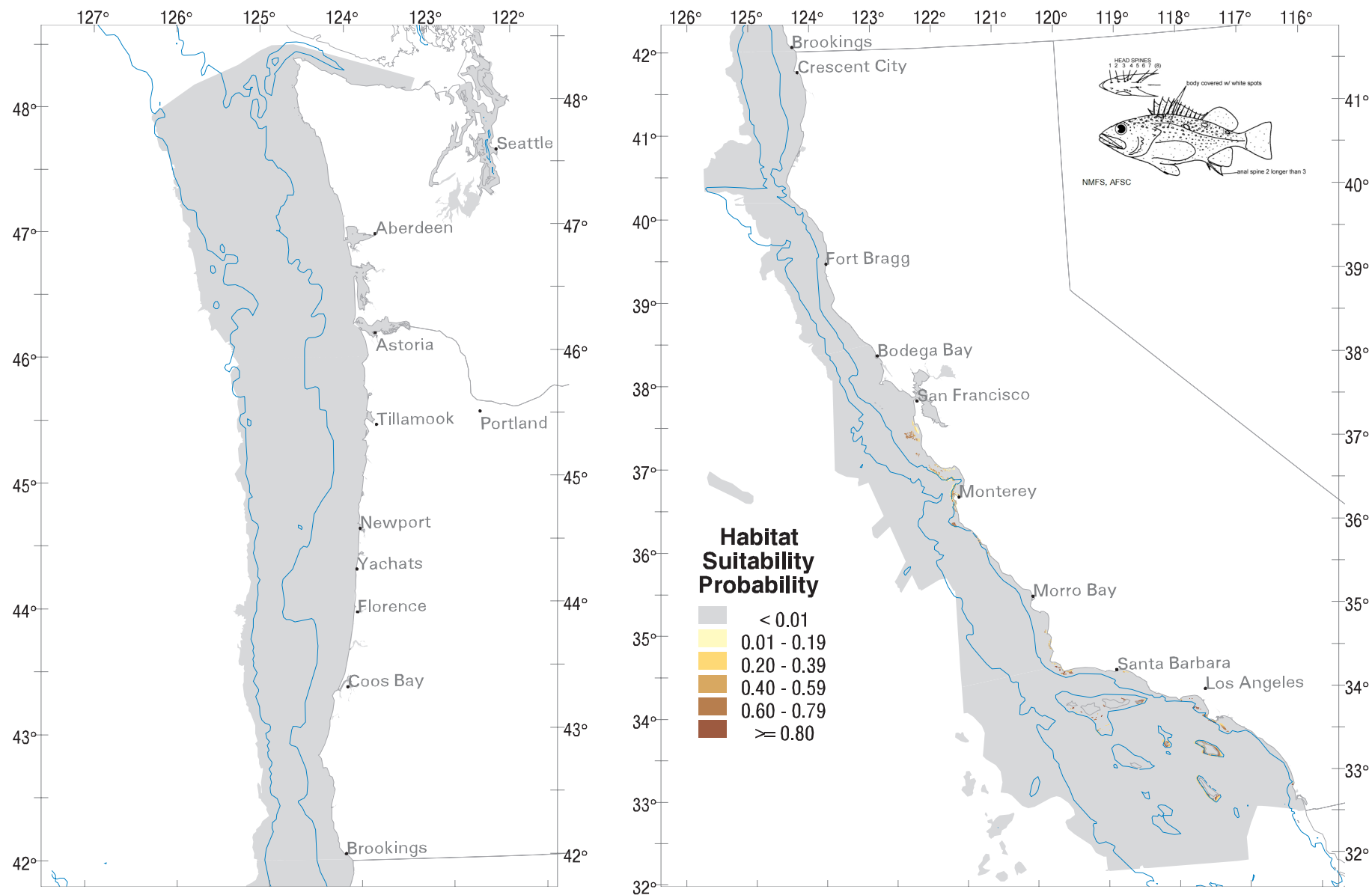|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Starry Rockfish - Adult

Habitat Suitability Probability

(grey)	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

HEAD SPINES
1 2 3 4 5 6 7 (8)
body covered w/ white spots
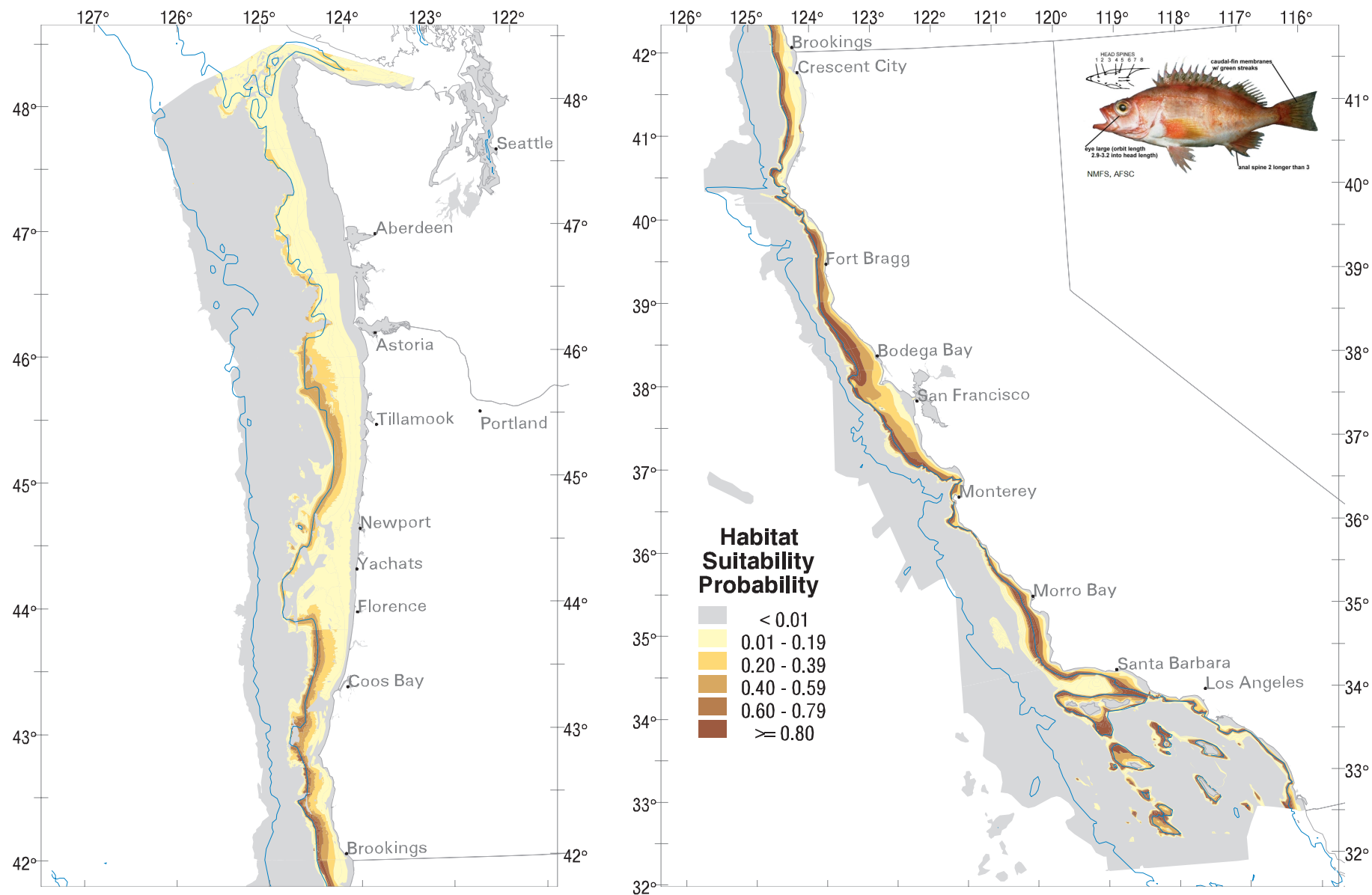anal spine 2 longer than 3
NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date : November 01 , 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from : HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Starry Rockfish - Juvenile

Habitat Suitability Probability

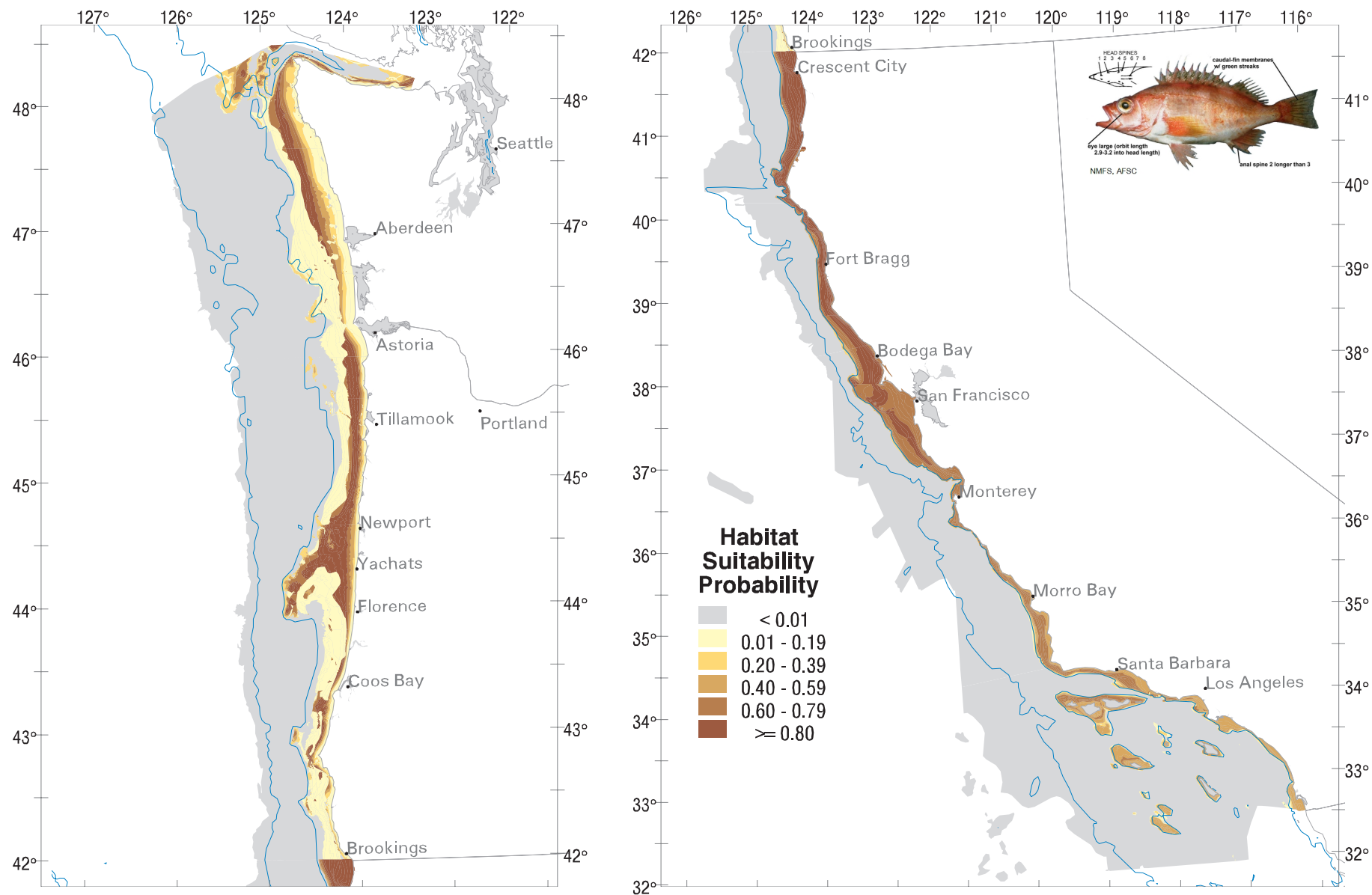|	
▨	< 0.01
▨	0.01 - 0.19
▨	0.20 - 0.39
▨	0.40 - 0.59
▨	0.60 - 0.79
▨	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Stripetail Rockfish - Adult

HEAD SPINES
1 2 3 4 5 6 7 8

caudal-fin membranes
w/ green streaks

eye large (orbit length
2.9-3.2 into head length)

anal spine 2 longer than 3

NMFS, AFSC

Habitat Suitability Probability

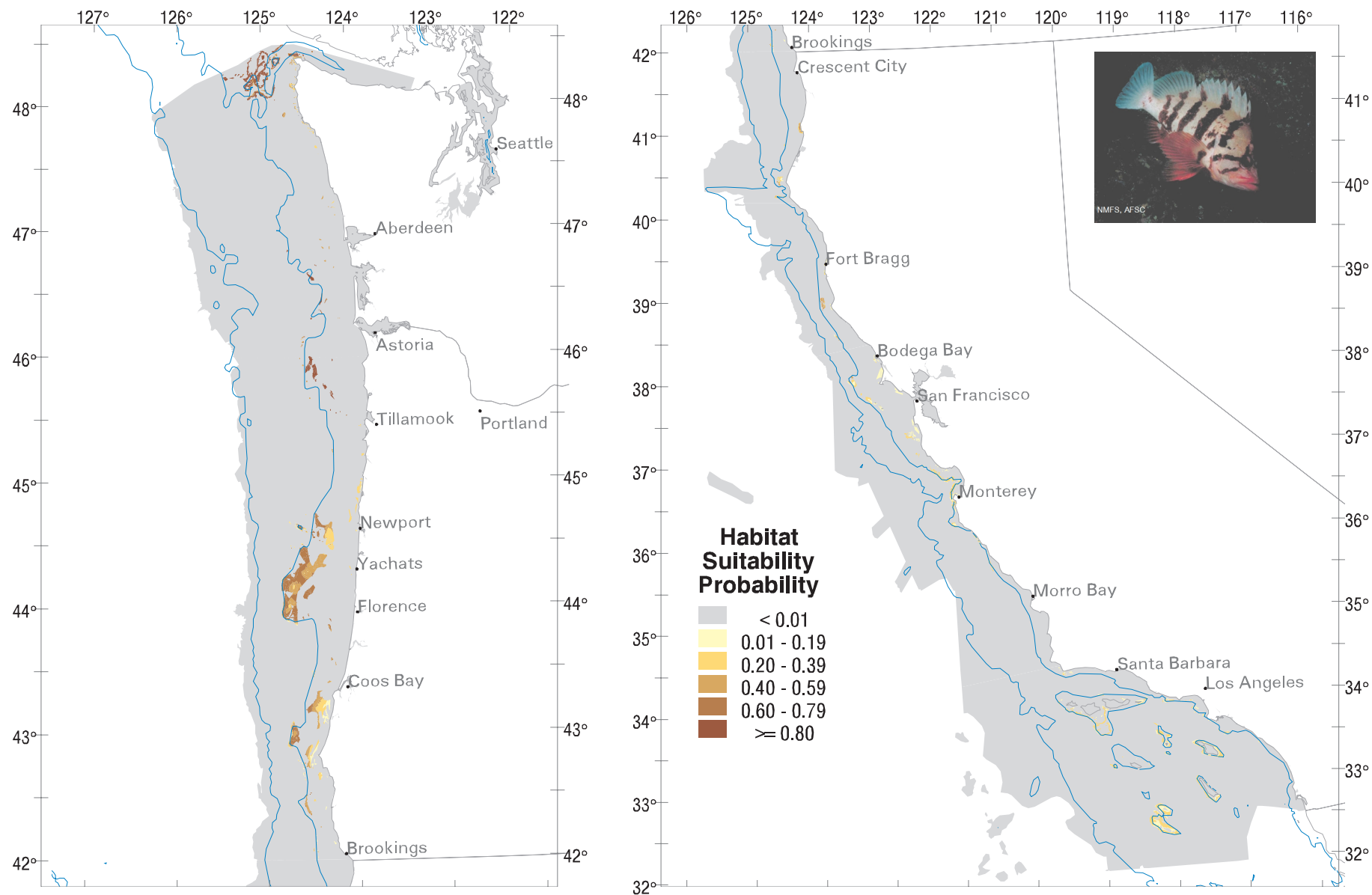|	
▨	< 0.01
▨	0.01 - 0.19
▨	0.20 - 0.39
▨	0.40 - 0.59
▨	0.60 - 0.79
▨	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: Survey+

Pacific Coast Groundfish EFH FEIS

December 2005

Stripetail Rockfish - Juvenile

Habitat Suitability Probability

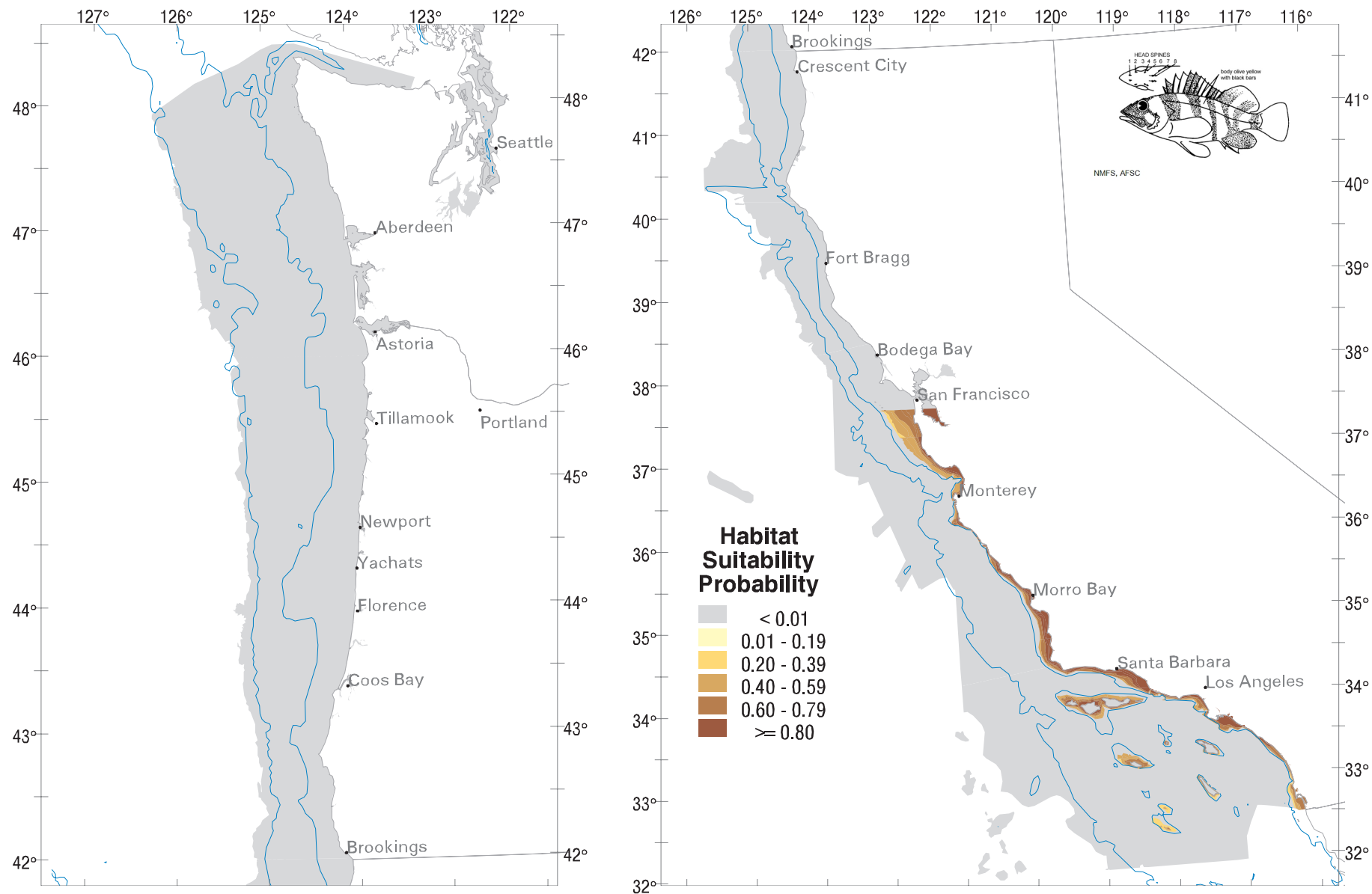|	
☐	< 0.01
☐	0.01 - 0.19
☐	0.20 - 0.39
☐	0.40 - 0.59
☐	0.60 - 0.79
☐	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Tiger Rockfish - Adult

Habitat Suitability Probability

|	
(gray)	< 0.01
(pale yellow)	0.01 - 0.19
(yellow)	0.20 - 0.39
(orange)	0.40 - 0.59
(brown)	0.60 - 0.79
(dark brown)	>= 0.80

NMFS, AFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Treefish - Adult

Habitat Suitability Probability

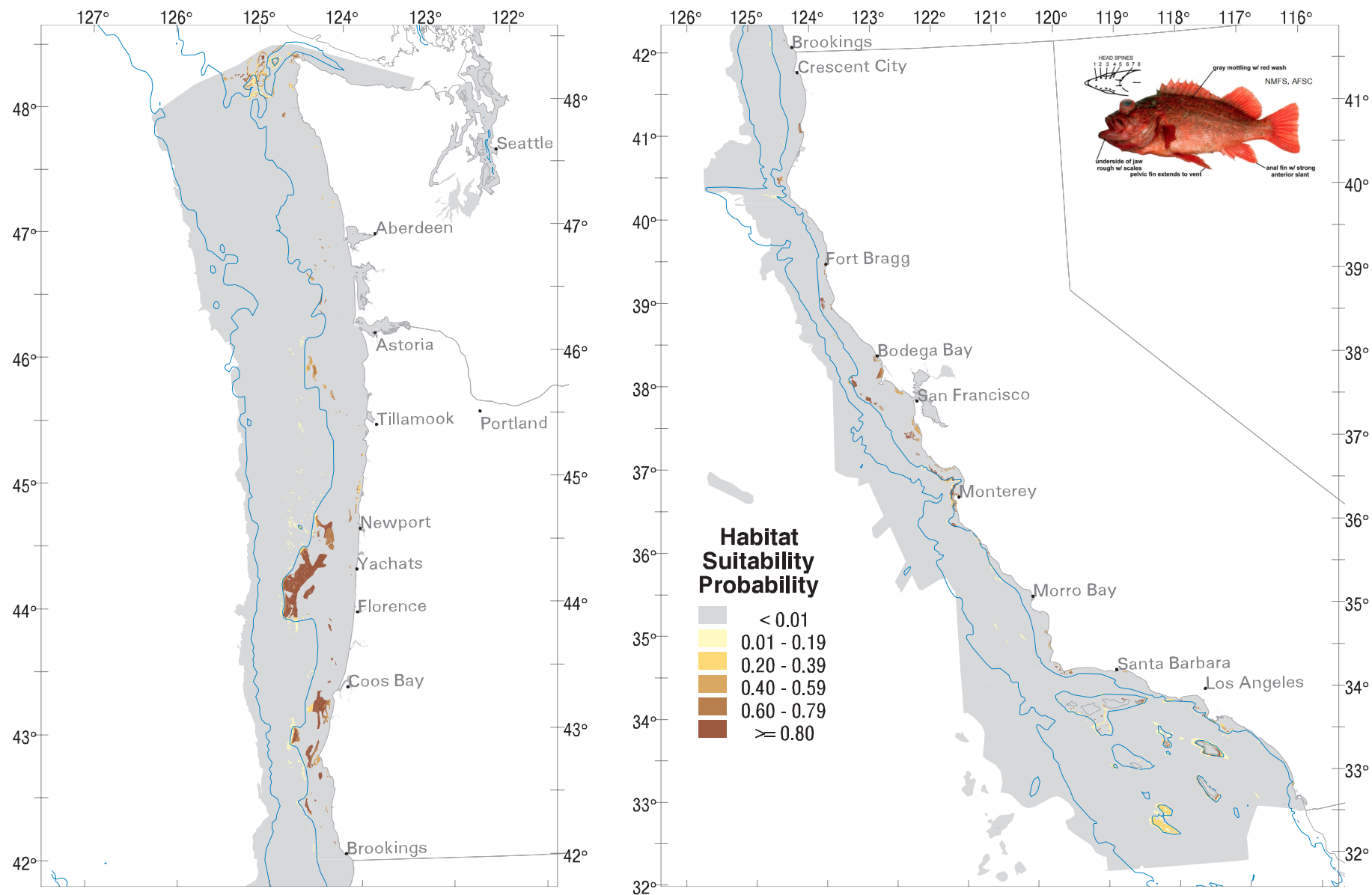|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD
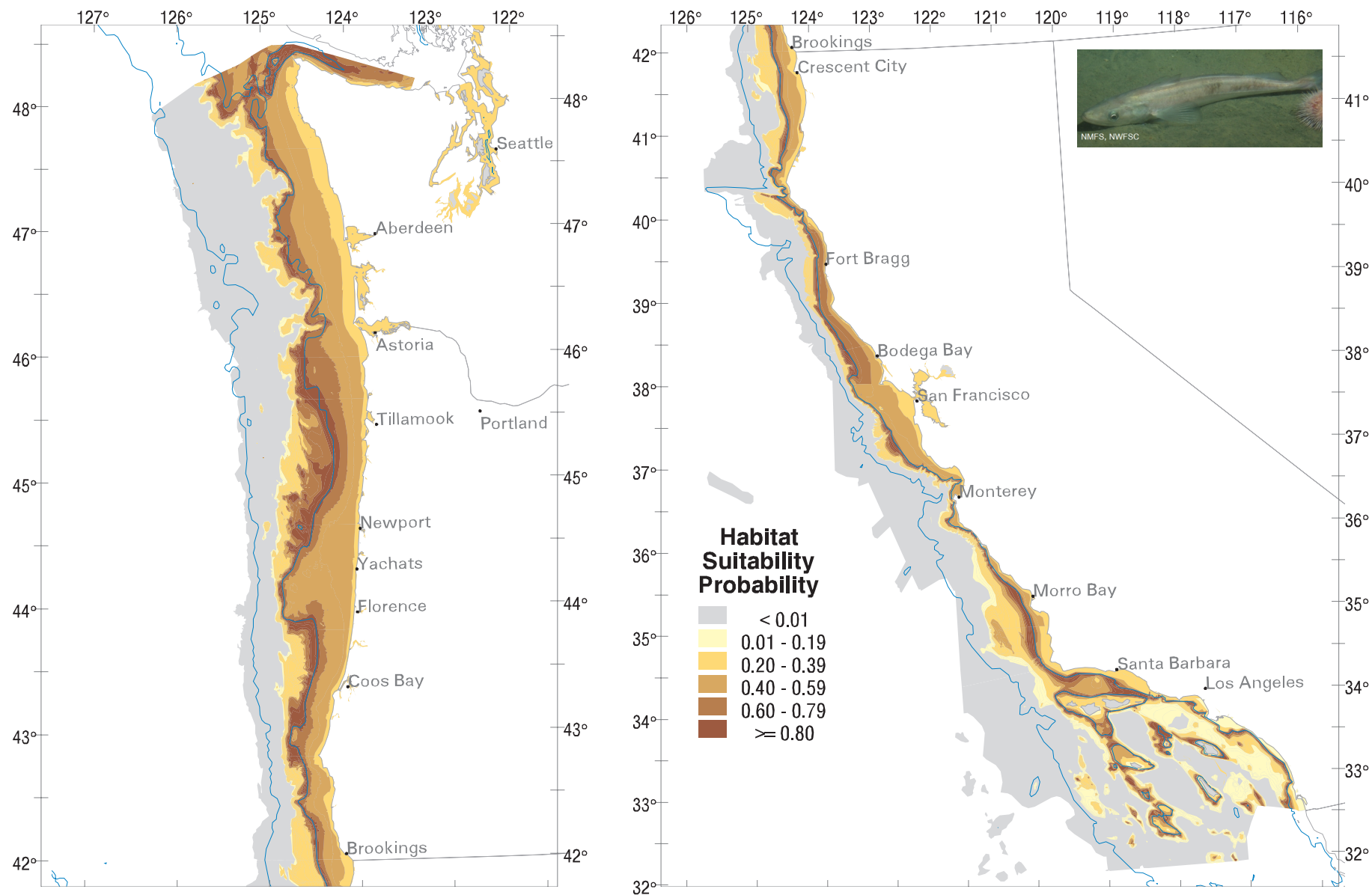
Treefish - Juvenile
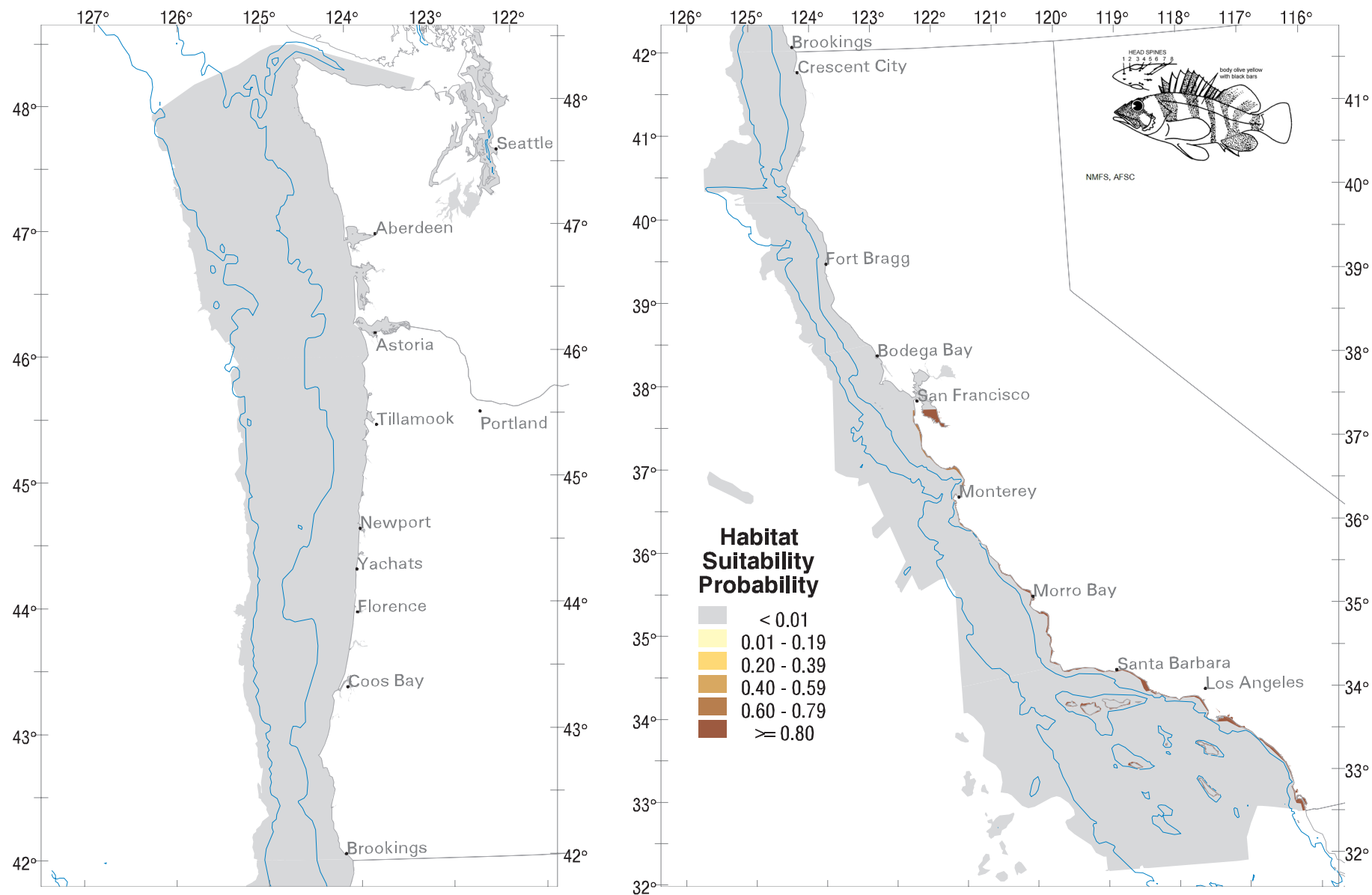
Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: October 16, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Vermilion Rockfish - Adult

Habitat Suitability Probability

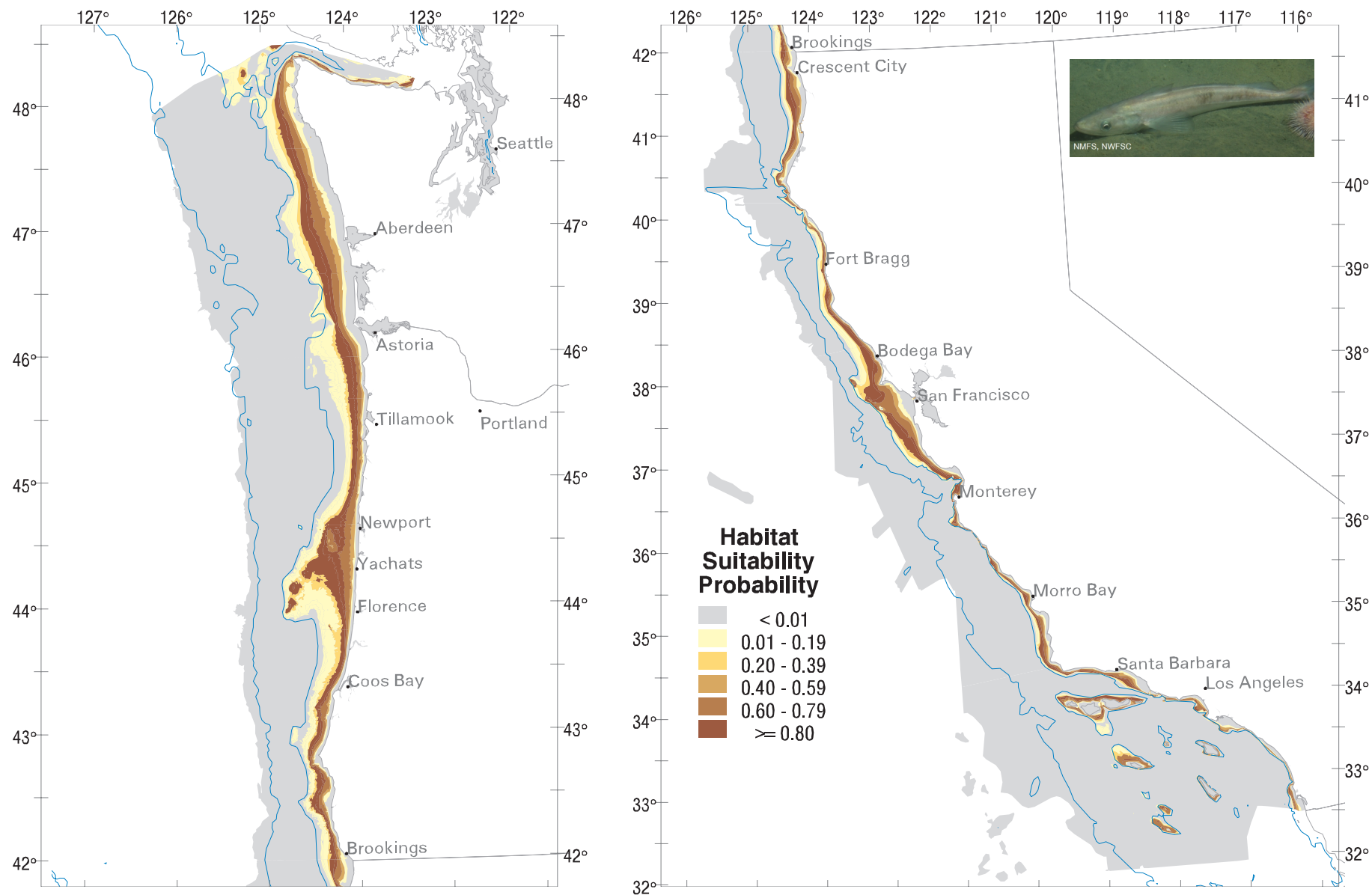|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Pacific Whiting - Adult

Habitat Suitability Probability

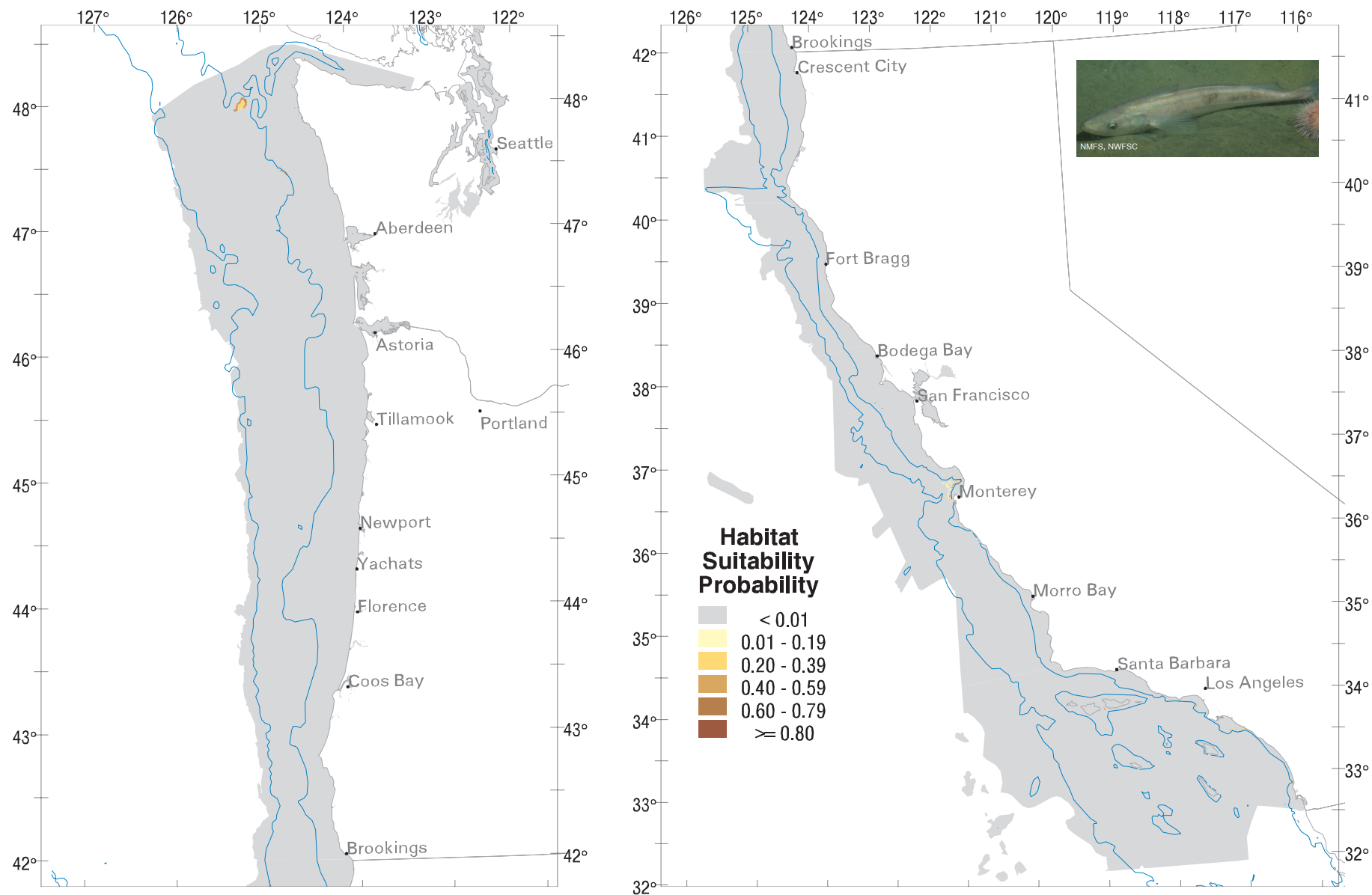|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS   December 2005

Pacific Whiting - Eggs

Habitat Suitability Probability

⬜	< 0.01
🟨	0.01 - 0.19
🟨	0.20 - 0.39
🟧	0.40 - 0.59
🟫	0.60 - 0.79
🟫	>= 0.80

NMFS, NWFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Pacific Whiting - Juvenile

NMFS, NWFSC

Habitat Suitability Probability

- ☐ < 0.01
- ☐ 0.01 - 0.19
- ☐ 0.20 - 0.39
- ☐ 0.40 - 0.59
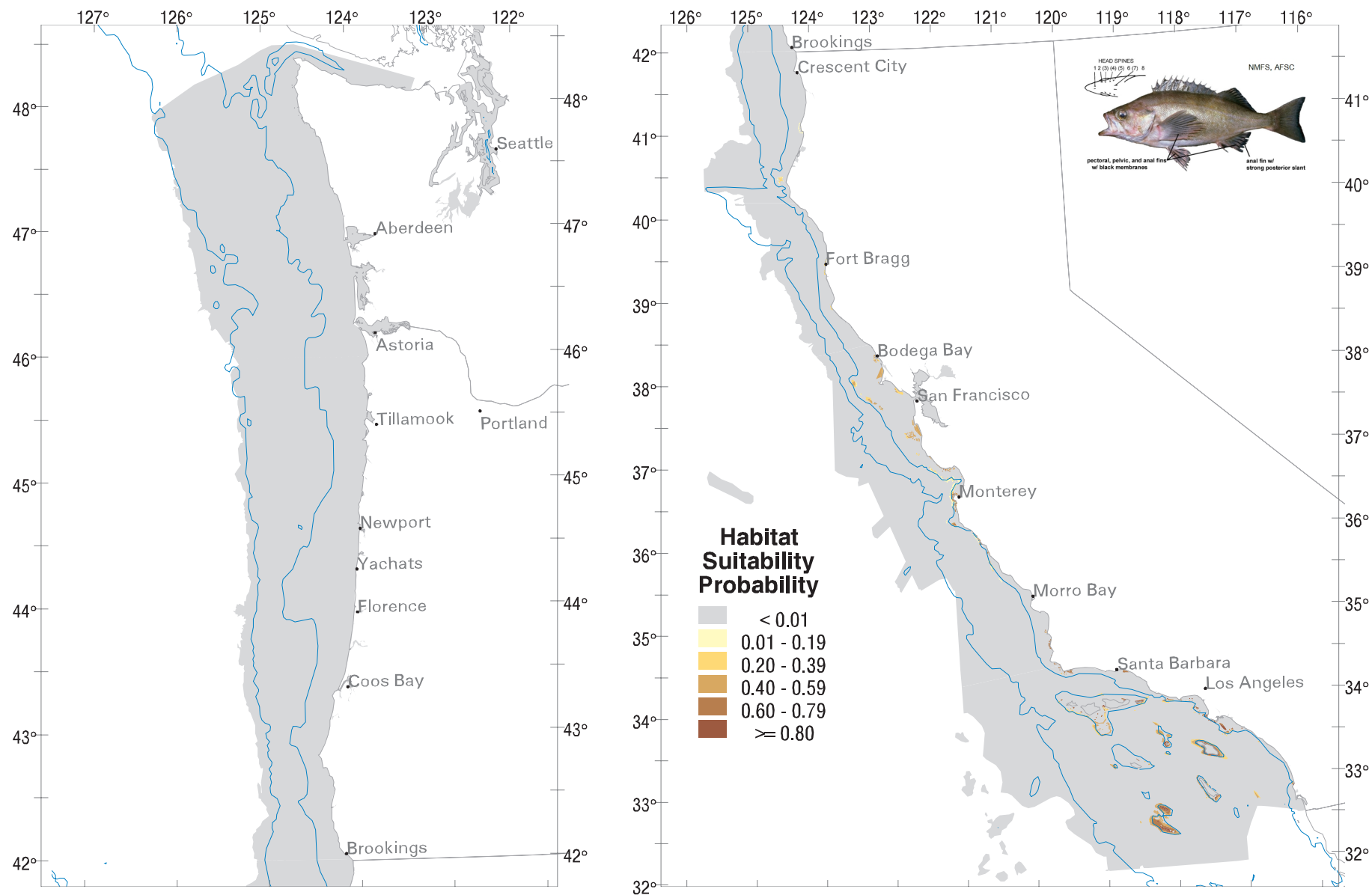- ☐ 0.60 - 0.79
- ☐ >= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Left map labels: Seattle, Aberdeen, Astoria, Tillamook, Portland, Newport, Yachats, Florence, Coos Bay, Brookings

Right map labels: Brookings, Crescent City, Fort Bragg, Bodega Bay, San Francisco, Monterey, Morro Bay, Santa Barbara, Los Angeles
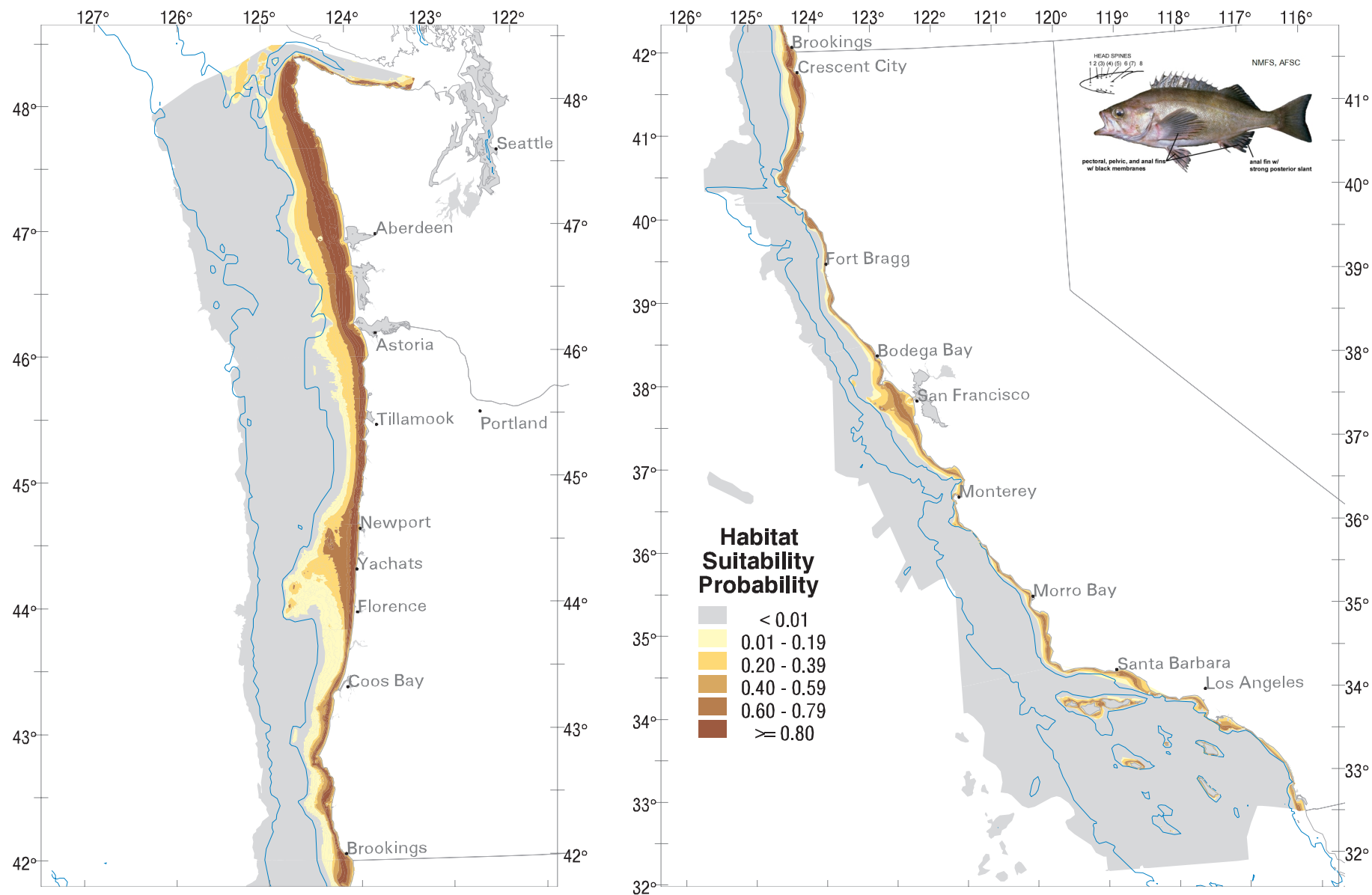
Widow Rockfish - Adult

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date : November 01 , 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from : HUD

Widow Rockfish - Juvenile

Habitat Suitability Probability

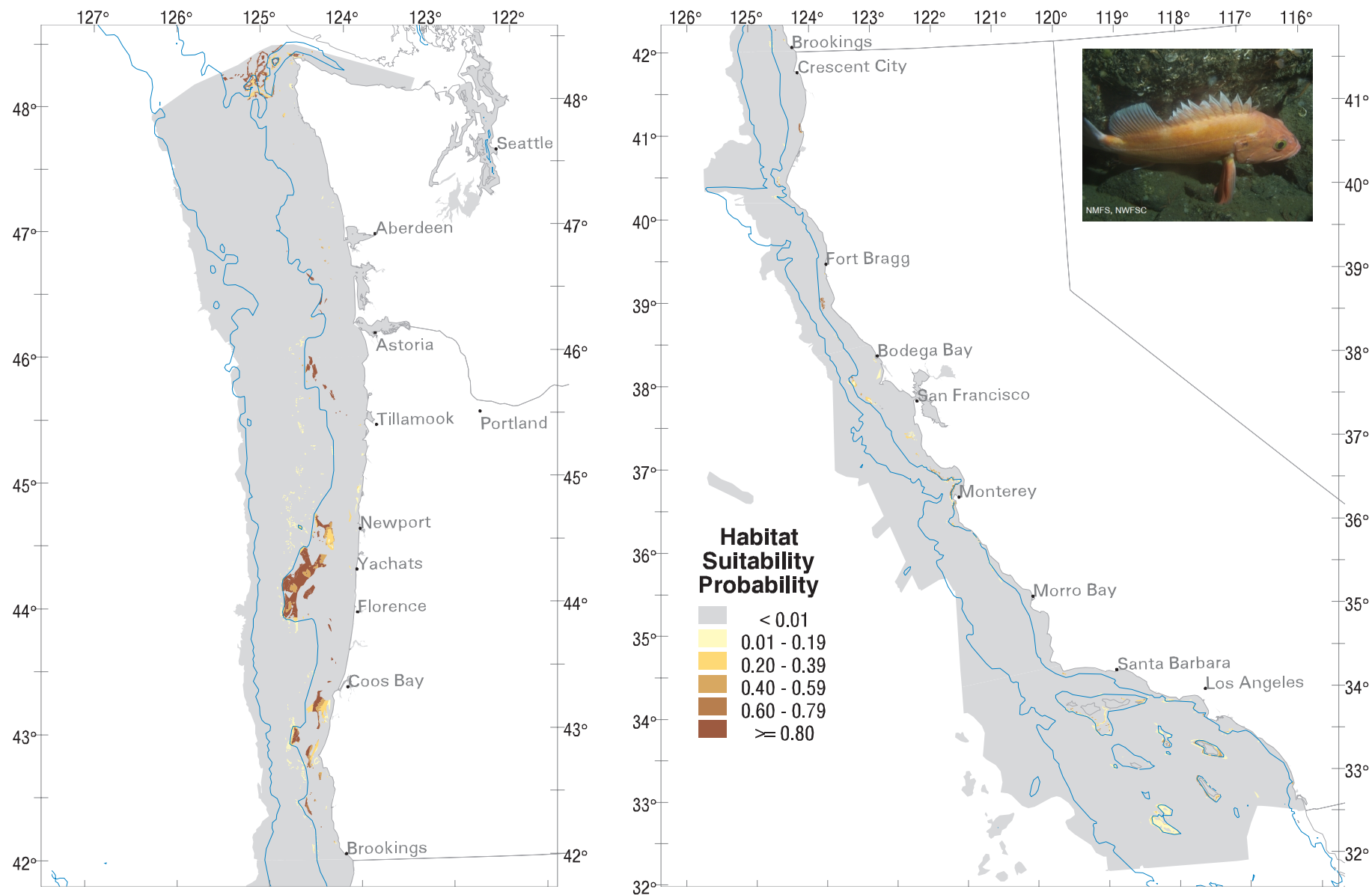|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Yelloweye Rockfish - Adult

**Habitat
Suitability
Probability**

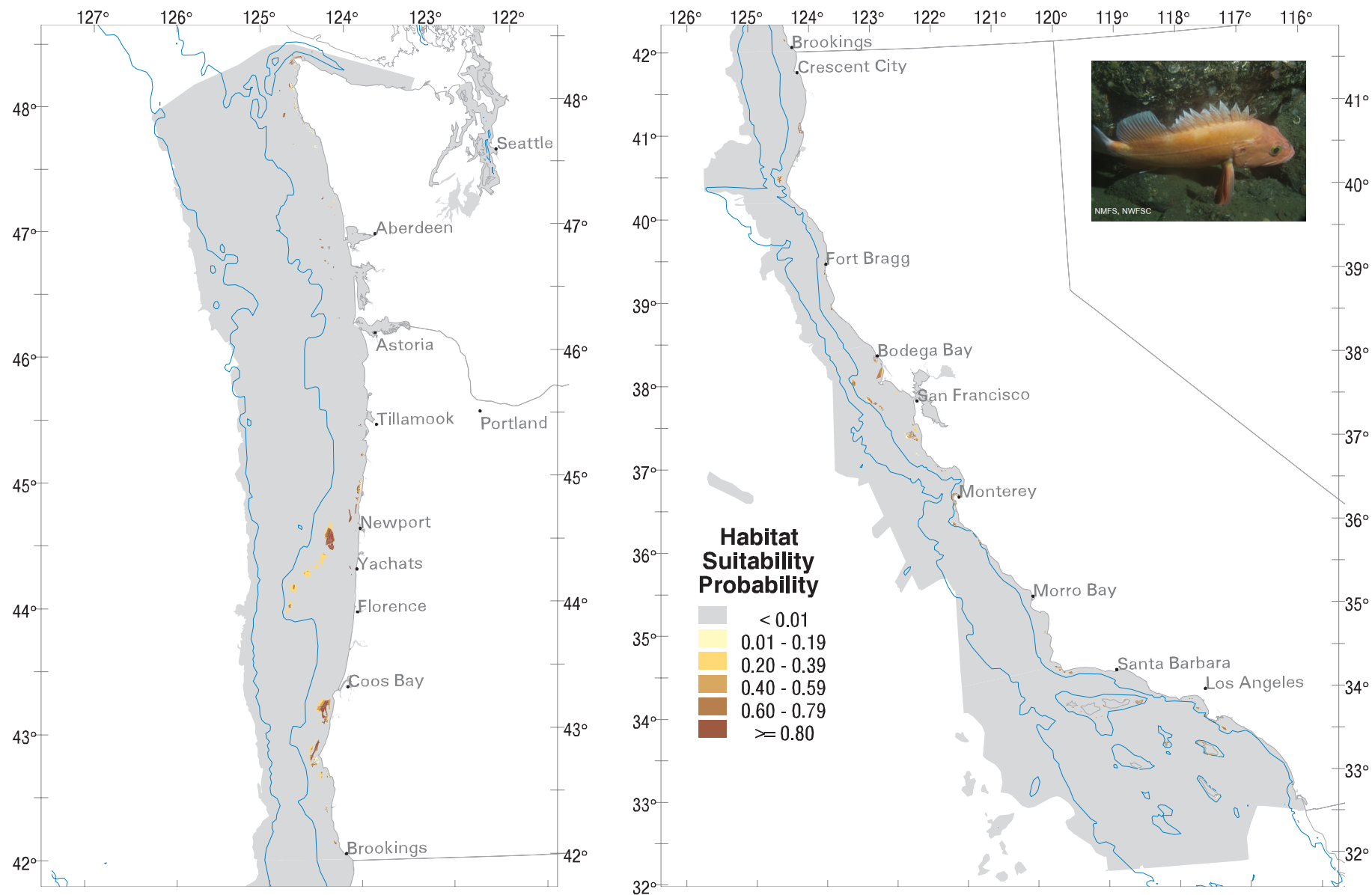|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

NMFS, NWFSC

*Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD*

Yelloweye Rockfish - Juvenile

Habitat Suitability Probability

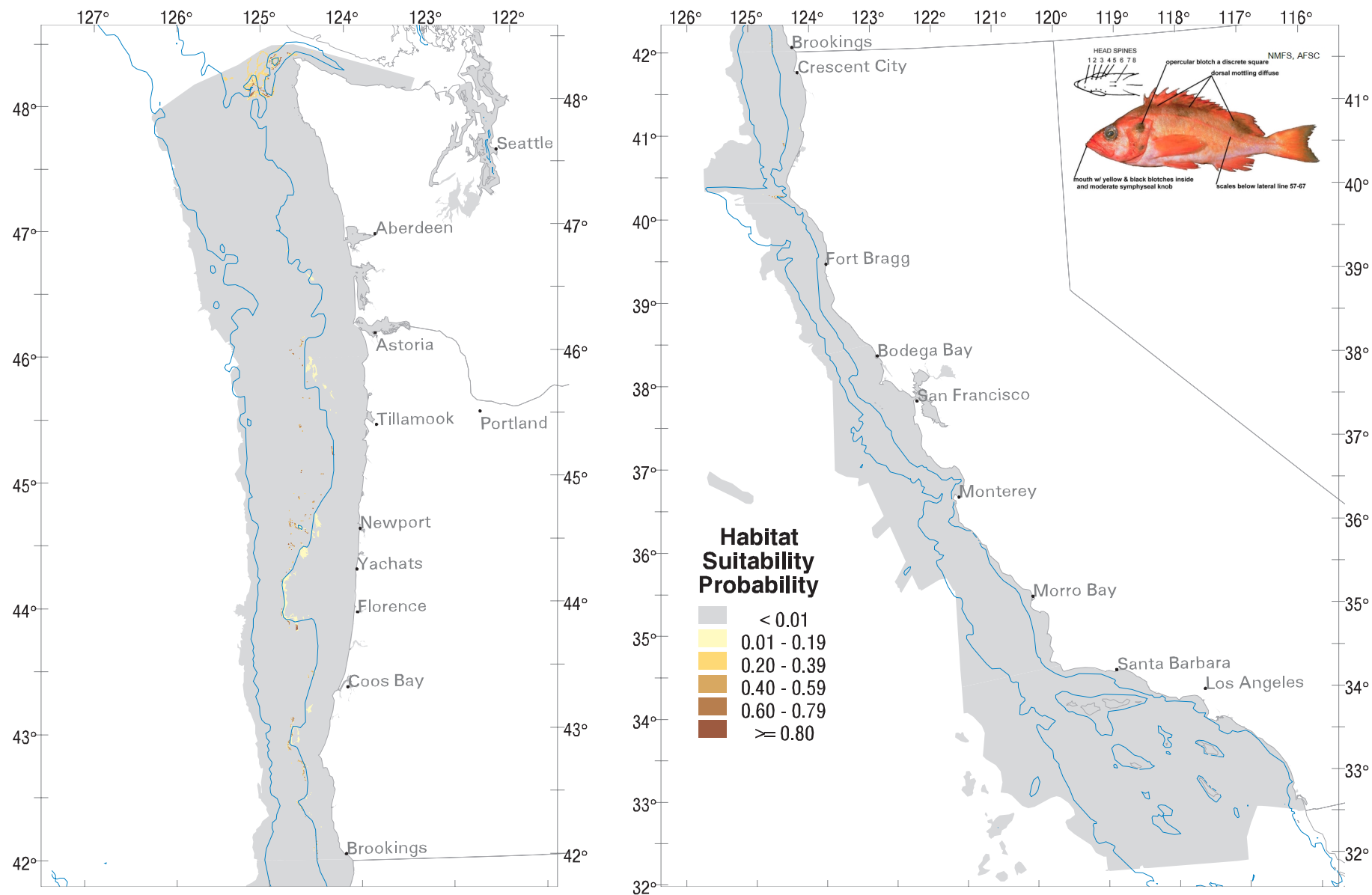|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

NMFS, NWFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Yellowmouth Rockfish - Adult

HEAD SPINES
1 2 3 4 5 6 7 8

NMFS, AFSC

opercular blotch a discrete square

dorsal mottling diffuse

mouth w/ yellow & black blotches inside
and moderate symphyseal knob

scales below lateral line 57-67

**Habitat
Suitability
Probability**

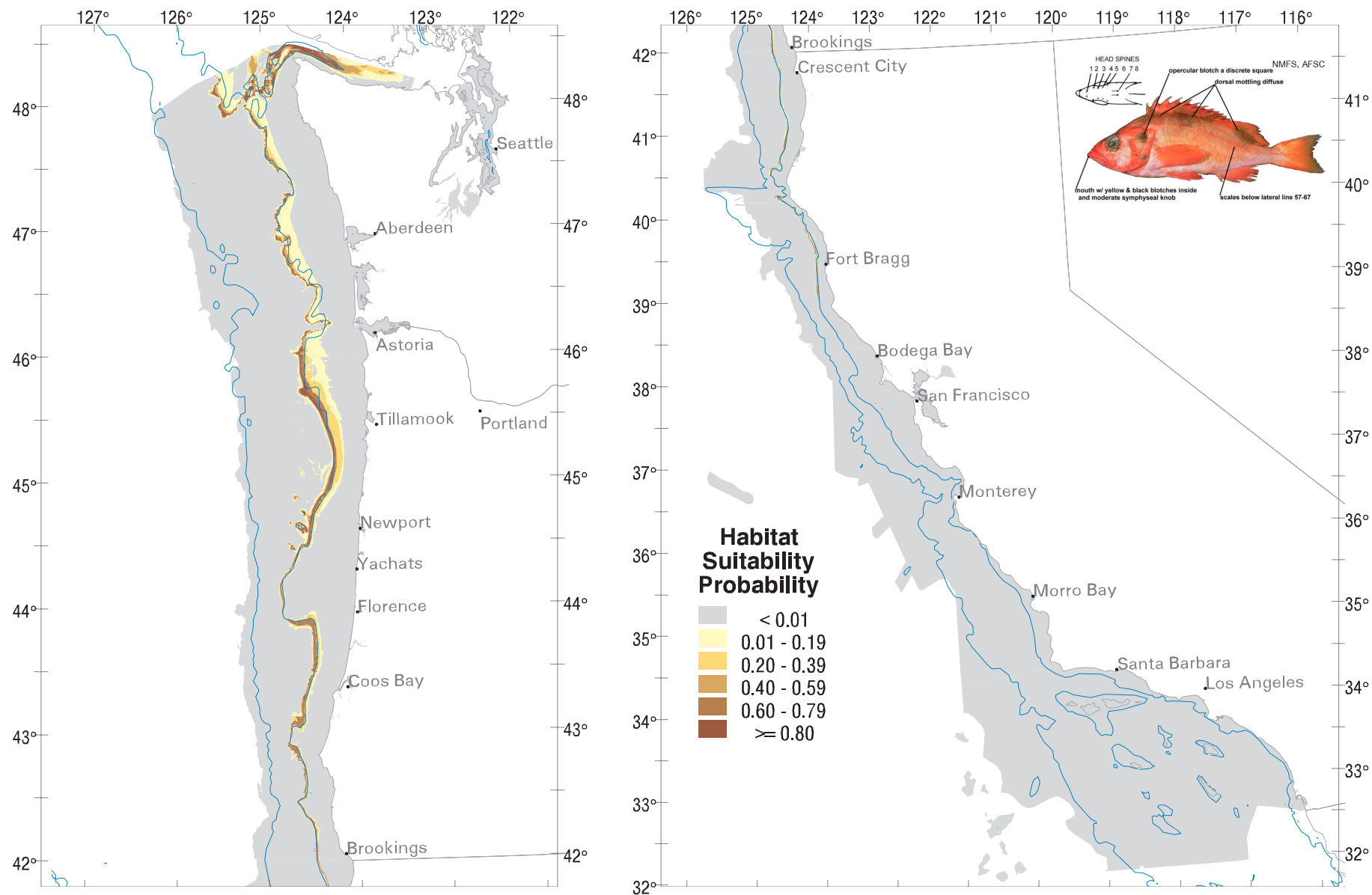|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005

Yellowmouth Rockfish - Juvenile

Habitat Suitability Probability

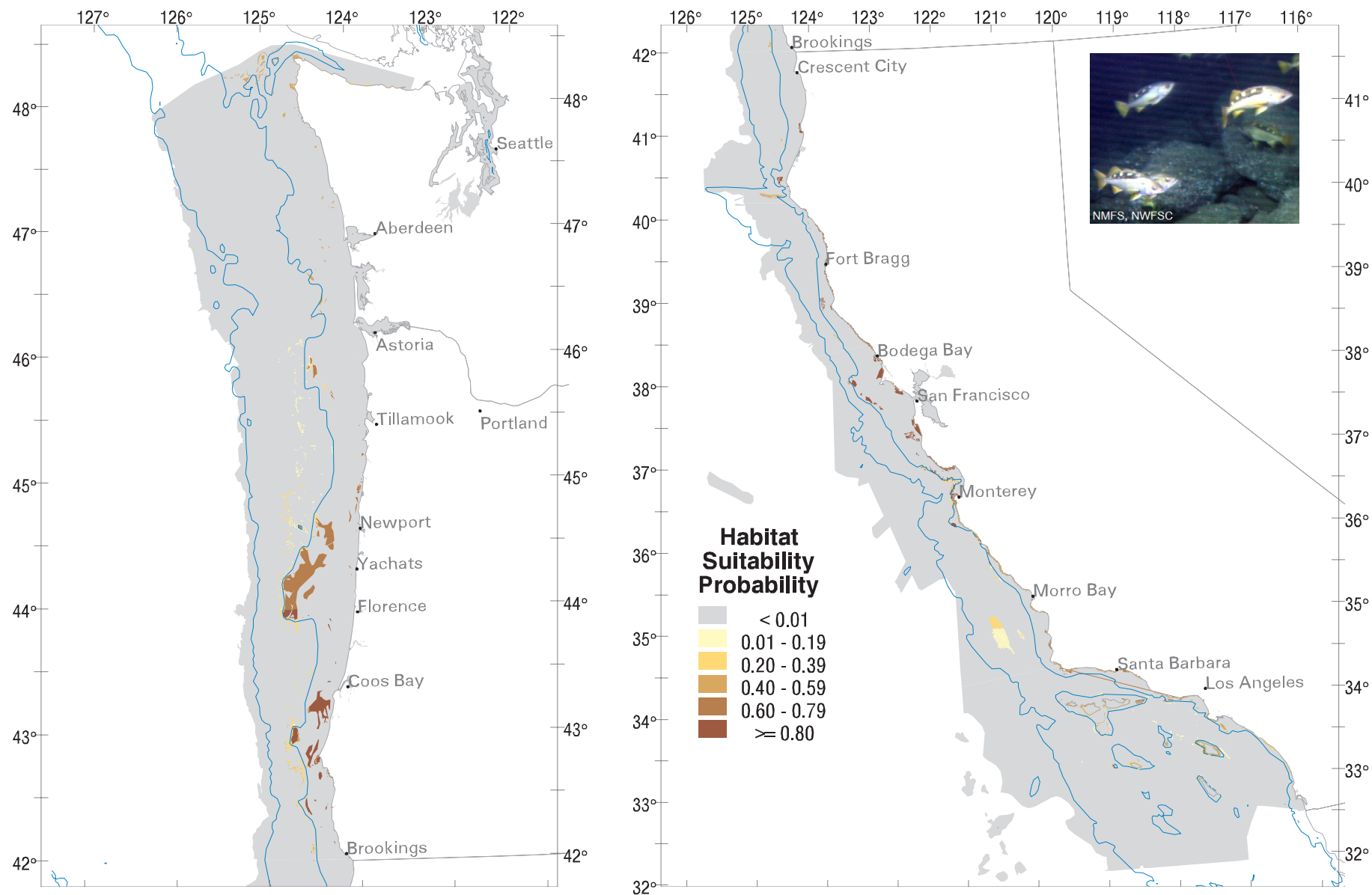|	
(gray)	< 0.01
(pale yellow)	0.01 - 0.19
(yellow)	0.20 - 0.39
(light brown)	0.40 - 0.59
(brown)	0.60 - 0.79
(dark brown)	>= 0.80

Habitat Suitability Probability data output from MRAG/University of Reading EFH model.   Cartography by Sound GIS, map date : November 01 , 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from : HUD

Yellowtail Rockfish - Adult

Habitat Suitability Probability

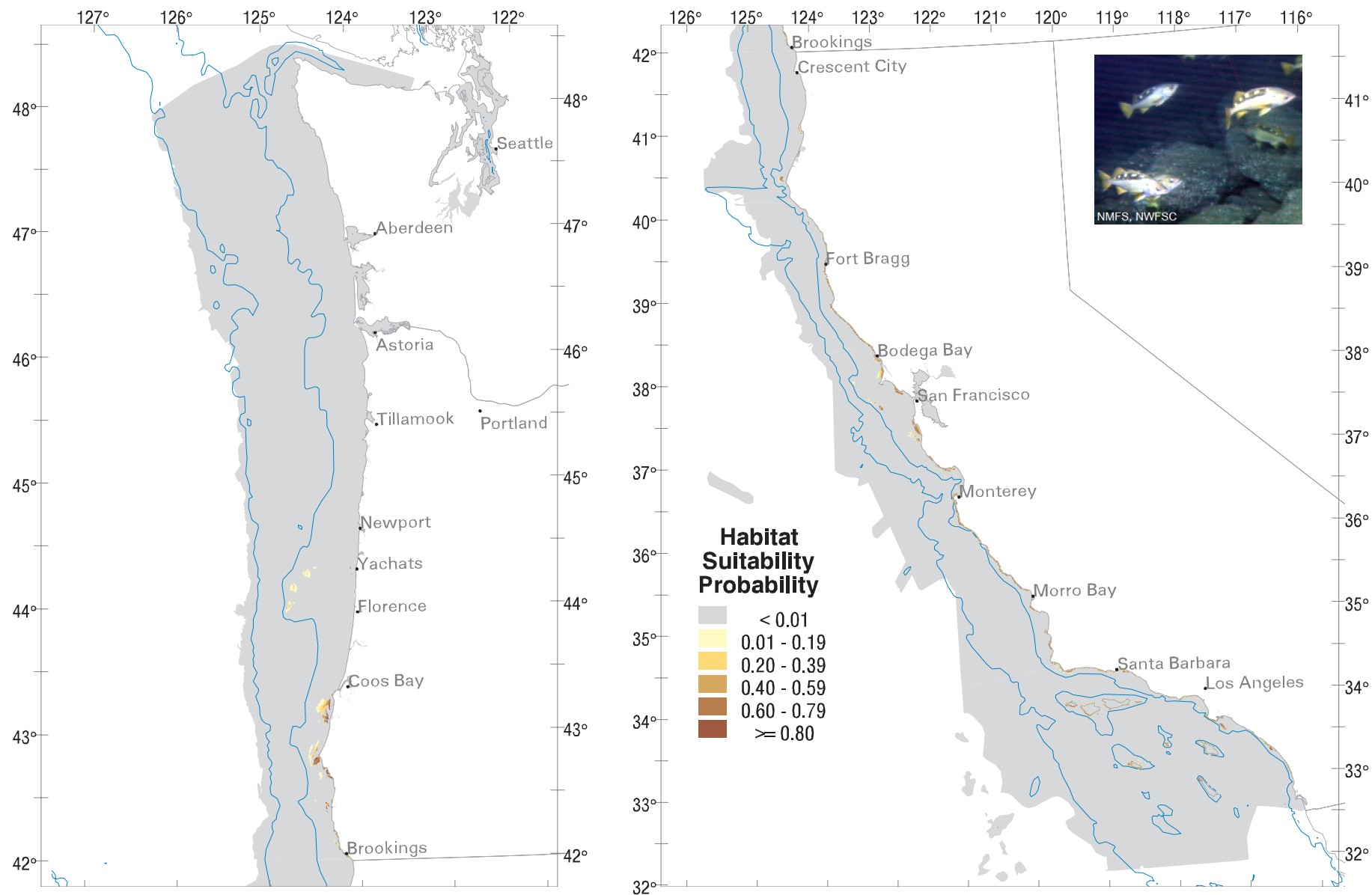|	
	< 0.01
	0.01 - 0.19
	0.20 - 0.39
	0.40 - 0.59
	0.60 - 0.79
	>= 0.80

NMFS, NWFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Yellowtail Rockfish - Juvenile

Habitat Suitability Probability

⬜	< 0.01
🟨	0.01 - 0.19
🟨	0.20 - 0.39
🟧	0.40 - 0.59
🟫	0.60 - 0.79
🟫	>= 0.80

NMFS, NWFSC

Habitat Suitability Probability data output from MRAG/University of Reading EFH model. Cartography by Sound GIS, map date: November 01, 2005
Species/habitat association for benthic substrate derived from NMFS Habitat Use Database (HUD). Depth and latitude association derived from: HUD

Pacific Coast Groundfish EFH FEIS

December 2005